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EDITORIAL.

The present number closes volume five, which is the first volume containing four numbers. It is the largest volume yet published, containing over six hundred pages. The plans now matured for volume six justify, and the added expense of enlargement necessitates, the increase of price to five dollars per year, and even this is not proportionate to the increase of matter and expense.

The present number contains an unusual number and variety of matter. Mr. Partridge's Study of Reverie should be read in connection with the article on Mental Automatisms (Vol. V, p. 41). The subject is so new and vast that this article is confessedly only a beginning toward further needed empirical study. The appendix on Imaginary Animals is rich in psychogenetic suggestions.

Mr. Bohannon's article on the Only Child in the Family is more than an elaboration of the same writer's outline of the subject in his Peculiar and Exceptional Children (Vol. IV, p. 36). A perusal of this painstaking study teaches how exceptional only children are likely to be in health, relation to school, play and social life, mental and moral peculiarities, precocity and needed treatment.

Principal Taylor's Practical Aspects of Interest (p. 497), has a practical utility in suggesting how poor teaching can be

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located, the work and zest of teachers tested. His five tables are the results of a painstaking study.

The weather has long been supposed to exert an important influence upon the moods and psychic activities of adults, and is commonly thought to affect the spirit of the school. Mr. Lemon had previously gathered a few considerations upon this important point (Psychic Effects of the Weather *American Journal of Psychology*, Vol. VI, p. 277). Mr. Dexter (p. 512), publishes four careful plates illustrating the effects, respectively of wind, barometer, temperature and humidity, upon misdemeanors requiring corporal punishment in 606 cases in Denver.

Mr. Wissler investigated children's interest in elementary reading (p. 523), by the questionnaire method, and presents his results in six plates and tables, showing that fiction and poetry are preferred, that complete stories are more interesting than outlines, that girls prefer emotional, and boys the active side of life, that boys have most individuality, and that sex differences increase with age (p. 540).

Mr. Wilson meets a "long felt want," at least at the library which he directs, in his carefully selected, sometimes individually characterized, topically indexed list of 641 of the more important books and articles on child study, nearly all of which are available here.

Mr. Phillips (p. 590), replies to Professor Dewey's criticism in the last number, of his article in October, 1897, upon Number and Its Applications. Mr. Hugh discusses the Herbartian idea of formal education from the standpoint of physiological psychology, and among the reviews the books of Neitzsche and that of Marro on adolescence are criticized at unusual length.

REVERIE.[1]

G. E. PARTRIDGE, Clark University.

"Imagination is the preparatory school of thought."—GOETHE.

I.

INTRODUCTION.

The following study of reverie was commenced in co-operation with Mr. E. H. Lindley, using as a basis the returns to a syllabus on reverie, fancy and imagination, issued in 1895. Owing to the pressure of other work undertaken by him, and to the desire on my part to extend the study beyond the original plan, all the material was finally turned over to me. Thanks are due at the outset to Mr. Lindley for the papers and for much assistance.

Although reverie has been noticed in its relation to pathological states, to clairvoyance, to religious phenomena, and to genius, it has received but scant attention from psychologists, and its pedagogy especially is an entirely new field. Reverie might be studied profitably, with more attention to the mental content, as such, than has been attempted here. It would seem to be the natural approach to the whole subject of association of ideas and new light might be expected from such a treatment, upon obscure facts of association, which the present doctrine seems inadequate to explain. But such a study would involve consideration of a large number of cases, in great detail and with more intimate knowledge of each than was obtainable by any readily accessible method. More attention has been given in this paper to the relation of reverie, regarded as a type of imagination-states, to the instinct-feelings, and the pedagogy of the subject has been kept in view throughout.

The term reverie is extended to include not only day dreaming and castle building, such as is common in childhood and adolescence, but also all such states of absorption and abstraction as are described in the article on mental automatisms mentioned above, and there regarded as incipient reveries. An attempt is made to make plain the connection of all these psychoses, with the rudimentary-consciousness group and the general conclusion is reached that the function of imagination is to exploit the

[1] This paper forms a second chapter in the study of automatic mental activities. See Some Mental Automatisms, by Lindley and Partridge, PEDAGOGICAL SEMINARY, Vol. V, 1, pp. 41–60.

recesses and automatisms of the mind and to widen out and to make more generic the consciousness of the individual.

With the increasing recognition in psychology of the importance of the instincts and the feelings, and the entrance of heredity into the realm of the psyche, a new view of mind is imminent, if not already upon us. We may at least no longer speak of mind as a unit, but rather as an aggregate of parts very imperfectly united. It is a patchwork of survivals of psychoses. Evolution is accomplishing a more and more complete unification of these parts, and the physical basis of the process is now known to be the development of the association areas of the highest level. In undeveloped, in diseased, and in degenerate minds, this process is seen in its earlier stages, or reversed, and the moral and mental inconsistencies which characterize such conditions indicate to what a degree disintegration may be carried.

Literature. Etymologically reverie is related to dream, and is usually a direct derivative from the word for dream, as rêverie of the French, Träumerei of the German. The Arabs have a word "keff," which signifies a waking dream, with the added significance of happiness in repose. So the Italian "far niente" is best translated as "sweet repose."

The literature which touches most closely the psychology of reverie, was not written for that purpose. The lives of the mystics, religionists and poets furnish a wealth of material for the study of creative reveries. The literature of narcotics, of sleep and dreams, pathological dream states, hallucinations, crystal gazing and clairvoyance, contains facts and theories which bear upon our present topic.

A prevalent conception of the nature of reverie is well expressed in an article which has been copied from encyclopædia to encyclopædia as follows: "In an exaggerated form it is of rare occurrence, but when exceeding absence of mind or abstraction from what is passing around it is abnormal and unhealthy. It may under all circumstances be regarded as a phenomenon of an imperfectly constituted, if not of a diseased nervous temperament." This view of reverie is found also among French writers. Janet says that all mental automatisms, as well as all trance and hypnotic phenomena, belong to the hysteric diathesis. No perfectly normal brain, he contends, is capable of these split-off states, which are present in the hypnotic condition.

Dr. J. Crichton-Browne[1] has described from a medical point of view, certain automatic and dreamy states, which he has found to be prodromal to epileptic disturbances. The most common form of these automatisms is the feeling, so often described by the poets, that the present experience has all been

[1]Dreamy Mental States: Lancet, July, 1895.

lived through before. This feeling the author maintains indicates over culture and neurotic tendency, and may be the first step in a series of changes which end in complete obliteration of mind. The state is one of vagueness of feeling of present surroundings and an increase of consciousness in another direction, indicated by a too vivid revival of former surroundings. There is a loss of control of higher centers and a correspondingly raised activity of other nervous arrangements. Other sensations in this group are a loss of identity, going back to childhood, the vivid return of an early dream, loss of touch with the world, deprivation of bodily substance, loss of proportion, momentary blank despair, being at the day of judgement, all of which dreamy states are abnormal in their essence and morbid in their tendencies.

This very interesting article is open to the criticism that it does not clearly recognize the fact that these conditions, although, no doubt, occurring in connection with epileptic disturbances are often found in normal fatigue and in adolesence, and that they are not abnormal in their essence. Surely the temporary loss of control of higher centers, and a correspondingly raised activity of other nervous arrangements, does not indicate a defective nervous system.

Dr. J. Hughlings-Jackson offers the following explanation of reverie. "The several levels, as evolution goes on acquire a degree of independence of each other. The highest centers can energize independently of the lowest centers, out of which they have evolved. Thanks to the sensory centers being resisting positions, as well as centers of energy, the highest centers can energize independently of the surroundings. Thanks to this protection there occurs internal evolution in our highest centers. We can have combinations never actually experienced. There is an organization of many different nervous arrangements of our highest centers during actual converse with the surroundings. In sleep, reverie, reflection, the highest centers will be in least activity, and the next lower of the centers in greater activity. The nervous arrangements of the highest centers are left to fight it out among themselves. Manifestly new, though evanescent combinations, are made during dreams, but I contend that permanent arrangements (internal evolutions) are made during so-called dreamless sleep."

Though not quite understanding what this process of internal evolution, which makes new combinations may be, I have quoted this view at length because it is a clear statement of the hierarchy of centers, and the independent action of different levels of consciousness. Hirth[1] in his well known monograph propounds

[1] Localisations-Psychologie.

the question "Warum sind wir zerstreut?" His answer to this question constitutes his "*Merksystem*" theory of consciousness. These apperceptive groups are of all degrees of complexity, they lead lives more or less independent of each other, have different temperaments, differ in habits of fatigue, and recovery. There is a constant struggle among the *Merksystem* for dominance in consciousness. The multiplex character of the "*Ichsynthese*" is the cause of the phenomena of distraction, and reverie, and mind wandering, for when one "*System*" is fatigued others spring up automatically, to obtain audience. By far the greater part, and the better part of mentality is carried on below the threshold of consciousness, for consciousness or the highest degree of a great number of conditions of attention represents in a way a friction of the machinery of thought, for it comes out of the struggle for dominance among the elements. Momentary reveries and mind wanderings which occur during periods of most intense thought, are normal, Hirth maintains, for during these pauses the work is being done in the unconscious undisturbed by consciousness.

Contrasted with the unconscious cerebration theory of Hirth, is the view of F. W. H. Myers. For him the conscious thought is but a very small part of the mental process constantly going on in connection with the organism. The mind is composed of numerous strata, *all conscious*, and the subliminal part embraces a far wider range, both at the physiological and at the psychological end of the spectrum. Only a small part of this subliminal activity rises into the cognition of the empirical self, and what shall so rise may well have been originally determined by some process of natural selection. Although this conception of a stratified consciousness is pressed into the service of a theory which is undiscussable on purely psychological lines, in these articles Mr. Myers has brought together a vast number of data, which bring home forcibly the narrowness of the conscious personality view of mind. Although far from agreeing with Mr. Myers when he says that the hypnotic trance and dreamy states represent a higher type of mentality than the ordinary waking consciousness, all the evidence at hand leads to the conclusion that they are not in their essence abnormal, and that some of these states perform an important function in the growing mind.

There is a type of reverie, no doubt, which represents a high order of nervous structure. Thinking of the effortless, logicless kind has given to the world many things of value in art, music, literature, and science. To quote Brierre de Boismont. "There are two kinds of reverie, that of weak minds and that of deep thinkers. Reverie is a prelude

to great creations in minds like those of St. Jerome, St. John, Crystosom, Descartes, Malebranche, Dante, Milton, Spinoza. To such minds reverie is often force, power, health, and even longevity. With them solitude is holy. I am persuaded that devotees, lovers, prophets, Illuminati, Swedenborgians, owe all their presentiments, their visions, their prophecies, their conversations with celestial intelligences, their journeys in heaven and in hell, the illusions to which that state of being makes us susceptible to the extravagance and superstition of their contagious reveries. But I do not hesitate also to say that it is probably in this state that men of genius have conceived the most original beauties of their works. In it the metaphysician has seen the first glimpses of the most ingenious of his systems, the poet, his most beautiful verse."

Oelzelt-Newin in his monograph on imagination, has much that bears upon the subject of reverie, particularly his treatment of the relation of the instinct-feelings to imagination.[1]

Adolescent Day Dreams.

The data which are presented in this section were gathered mainly by means of the questionnaire issued in 1895, the subject of which was "Reverie, Fancy, and Imagination." The section relating to day dreaming was as follows:

(a) Describe any case, whether in yourself or others, of reverie or day dreaming, when the mind was vacant, far-away, wool gathering, castle building, etc. Just what was the mind doing, how did you or the person observed, look, act, feel? What condition favors this state, and how came the awakening? Do you think it is like hypnagogic phenomena or those images experienced just as we are falling asleep? Do you deem them hypnotic?

(b) Do you rehearse in mind past scenes and events and idealize them or your own part in them? or do you day dream yourself, as, *e. g.*, delighting a circle of friends with your music, when in reality you are a very poor player or singer; entrancing an audience with an eloquence you never commanded; saying brilliant things that never occurred at the time; being a center of attraction, interest, or affection, influence, wealth, fame, etc., which you were in fact not known for? We all do this, but what is now wanted is frank, and carefully exact

[1] It is hardly necessary to state that the notes upon the theories of reverie given above do not pretend to cover the literature of the subject. They are given more by way of acknowledgment of suggestions and points of view, which have been of assistance in the preparation of this paper.

and detailed cases. In these states does the mind flit rapidly from point to point or dwell on one?

The papers yielded 337 usable cases. The general nature of the returns can best be illustrated by a few cases.

F., 17. Whenever I hear sad and touching music I always day dream. Sometimes when not interested in what is going on or when alone I sit in a sort of dream. I cannot describe how I feel except that it is an easy, rested, comfortable feeling. It seems as if my soul were away from my body. I do not seem to see anything. It is as if my eyes were closed. Sometimes I stay in this state for a short time and sometimes I dream a long while. Sometimes I am awakened by a noise, sometimes I awake of my own accord, as far as I can observe. It is not like falling asleep.

F., 19. In my day dreaming as a child, I usually planned the course of my life, where I was to be educated, what my calling was to be, where I should live, etc. I usually day dream when alone, and am awakened if spoken to. When falling asleep I am less conscious than when day dreaming, and I am more easily awakened from reverie than when falling asleep. I do not awake with a start, but simply take up my work again.

F., 19. I indulge frequently in day dreaming. One particular instance I can recall. It was at church, and I lost every word of the sermon. I cannot remember my dream, but my mind was far away. I was made aware of the end of the service only by the movement of the congregation. During sermon is my favorite time for wool gathering. I often meet people on the street, and do not see them, although I look at them. I love to build castles in the air. I love to think of myself as rich, and as travelling far from home.

The following case describes better the mental content:

F. 17. Sometimes I go over my past, and make my experiences much more satisfactory than they were when they originally occurred. Again I imagine myself famous as a singer, when, in reality, I cannot sing at all. Then again, I think of myself as winning many degrees, and as admired for my scholarship; as a matter of fact, I am 17 now and not especially brilliant in any line. Some of the scenes I linger over a long time, especially those in which I figure as the shining light.

These must suffice by way of illustration, though many of the papers are exceedingly interesting and suggestive.

Nearly all the cases in this group are of Normal school girls, ranging in age from 16 to 22 years, and all within the adolescent period. The majority are from 17 to 20.

A word as to the value of such returns. The phenomena which are described here are obviously largely closed to direct observation or experiment. Memory must be depended upon and allowances made for inaccuracies of observation and of statement. But day dreaming is a theme of natural interest to most people. It is the sweetest thing in some lives. Day dreams are vivid and real and they linger in memory. Thus, although no fast conclusions, especially quantitative conclusions, can be drawn from such accounts, or any conclusion, in fact, except in a very general way, much value is attached to them as descriptive and suggestive comments on the subject in hand. The data

fall conveniently for treatment under five rubrics: (a) The physical phenomena, position, etc.; (b) The mental state, emotional tone; (c) the conditions and causes, immediate and remote; (d) the mental content; (e) the awakening.

(a) *The Physical Accompaniments.* The eyes are most frequently mentioned as being affected in reverie, as follows: staring, mentioned in 56 cases; far-away look, 19; eyes wide open, 7; protrude, 4; roll upward, 3; half close, 2; close, 1; move rapidly between two points, 1.

The Facial Expression. Blank look, 15; look sad, 9; smile, 7; calm, 5; happy, 4; lips parted, 4; frown, 2; stupid or dazed, 2; mouth tightly closed, 1; face set, 1.

The facial expression, in the great majority of cases, indicates a relaxation of the muscles. The blank, expressionless look predominates, and the sad look, inasmuch as the mental state is always said to be pleasant, is rather to be regarded as negative and due to a lack of muscular tension.

The Position, Movement, etc. In 24 cases the body was said to be motionless; all muscles relaxed, 3; arms or hands folded, 3; head bent forward, 2; head thrown back, 1; tense position, 1. Movements were muttering, talking, 4; head turns frequently, laughs, claps hand, moves slowly, taps with the finger. In 20 cases reverie is said to be carried on in connection with other activities, as playing the piano, sewing, rocking, walking, doing mechanical work. One, a man, reports that he always day-dreams when walking home rapidly, after a hard day's mental work; as soon as he begins to feel warm and comfortable the mind begins to be crowded with preposterous reveries. They are usually motor in form. In one case the face was said to grow pale in reverie.

The most characteristic sign of reverie, as shown by these returns, is muscular relaxation. There is failure everywhere of the sensory to pass over into the motor. The eye muscles, the play of which contributes so much to expression, are relaxed. The axes of the eyes tend to become parallel. Somewhat late in their life history eyes have come round to a front position, vision has become binocular, and the mechanism perfected for short range vision. In man the bony structure, which has been slower in becoming adjusted, shows this primitive form, for the bony sockets are still slightly divergent. With man work is largely associated with near vision. The chief difference of position between hard thinking and day dreaming some testify to be in the focus of the eyes. With a hard mental effort the eyes are fixated on a near point, in reverie upon a distant point. In sleep the eyes roll outward and upward, some authors say. In alchoholic intoxication the eyes diverge and there is double vision. Tension and attention go

together. If attention is a hard push up, as Ribot says, in reverie the process is reversed. The feeling of effort ceases and the whole mental and physical condition suggests a state antedating the beginning of mental work. The emotional tone suggests the same view. The here and now is annihilated, and the mind reverts to a more primitive condition. The individuality is lost, and limitations of time and space are transcended, the mind becomes more generic.

(b) *The Subjective State.* Unconsciousness of surroundings is most frequently mentioned. Other expressions describing the same state are "far away feeling," "forget myself," "as if my soul were away from my body," "as if in a dream," "in the world, but not of it," "suspended in space," "as if moving upward through space," "a conscious letting go, and the self poses simply as an onlooker."

Conditions referred to the senses are, "cannot see," "everything grows dark," "everything looks blurred," "see things in the room change," "a buzzing in the ears like voices far away."

All these express the marked anæsthesia, the failure of the ensemble of external stimuli to weave itself into the mental content. The suspended feelings, the moving upward through space, are very frequently experienced at the time of falling asleep, and in dreams, and are doubtless due in part, at least, to the sensations from relaxing muscles.

The emotional tone in reverie is almost unanimously expressed as pleasant, for not only is comfort and a general ease of mind necessary for the induction of the state, but any disagreeable event occurring in the dream is suppressed or transformed, or else summarily brings the reverie to a close.

The happiness of this state is almost ideal with some. "Never so happy as when day dreaming," "the happiest moments of my life," "perfect content," are phrases used to express it. As summary of the 39 cases in which the emotional tone was mentioned follows:

Happy, contented, etc., 19; a restful feeling, 7; comfortable, 4; drowsy, happy or sad, according to the dream, 1; listless, 1; dreamy and free, 1.

Reverie selects the pleasant experiences of life or transforms the unpleasant. It is a pleasure state, however caused. Its sorrow, when any occurs, is rather the pleasant, sympathetic sorrow of an onlooker, than the pangs of a sufferer.

(c) *The Causes and Conditions.* This is the most important and suggestive chapter of the returns.

In all there are enumerated 99 different causes or conditions which favor reverie. These may be divided into three groups.

(1) The negative or general conditions. (2) Emotional causes. (3) Hypnotic causes.

(1) *Conditions.* Solitude leads, mentioned 51 times; fatigue, 46; quiet, 34; unoccupied, 14; not interested, 10; after a hearty meal, 8; after a party, 7; when drowsy, 6; in church, 5; first thing in the morning, 4; and then the following mentioned 1 to 3 times each: in school, at table, after retiring, alone in my room at night, when waiting for any one, before hard thinking, after strong effort of attention, lying down in the evening, when much fatigued. One says that quiet is not necessary, one often day-dreams in a room full of people.

The chief fact to be noted is the important part which fatigue plays in this condition. It is not overwork, evidently, that is meant, but physiological fatigue of the sweet, restful kind, which normal tire ought to be.

(d) *Emotional Causes.* Depression, discontent, and similar emotions are mentioned as inducing reverie in 38 cases, divided as follows:

After saying something I was ashamed of, 11; discouraged, 9; lonely, 6; when things have gone wrong, 3; after a disagreeable time, 2; worried, 1; after being angry, 1; when some one had excelled me, 1; ill, 1.

Reverie was induced by pleasant occurrences, as follows:

After hearing good music, 6; after reading a good book, 5; after the theater, 3; after pleasant time with friends or entertainment, or success in school, 1 each.

Jealousy, discontent with the present life, and depression seem thus to be more frequent causes of reverie than the pleasurable emotions. Reverie in these cases appears to be resorted to to smooth out the ruffled feelings. Over against the memory of the past, and the stern presence of reality, the ideal picture of the fancy is placed, and the soul is thereby comforted. This can best be illustrated by cases.

F., 20. I remember attending a dance one evening, when I was exceedingly stupid, I think I could have counted the words I spoke. Next day I went over to myself the brilliant things I might have said, and pictured myself the belle of the evening.

F., 18. I often rehearse past scenes, where I have said something that might better have been omitted. When slighted by some one I have solaced myself by imagining myself superior to the person in every way.

F., 20. When something unpleasant has occurred, I dreamed myself at the same place and doing exactly the opposite of what I did.

F., 18. After a party or social gathering I think over what I have said, and then add a great deal more, which I thought myself foolish for not thinking of at the time. After the girls have treated me badly, I imagine myself the center of attraction.

F., 19. I rehearse and idealize the past. I am poor in mathematics, and after failing in the class, I imagine myself suddenly becoming learned and astonishing my friends.

F., 16. I have often rehearsed past scenes, and idealized my own part in them, especially when I have been slighted; I imagined myself acting so charmingly that all are sorry, and become more attentive to me than to any one else.

F., 17. I am shy with strangers, but I afterwards imagine myself as entertaining, talking, and smiling, and being the center of attraction.

F., 17. When things go wrong I am apt to fall to dreaming about them, and changing the facts to suit my fancy.

M., 20. I often rehearse in mind past events of boyhood, especially if I did something not exactly right.

F., 18. I am bashful with strangers, but I make it all up in my day dreams.

F., 18. One evening I went to the theater and was so busy thinking about the play that I forgot to thank my friend for taking me. At home I went over all the scene, and all that I should have said, and then I felt better.

This form of reverie suggests the part which heaven-ideals have played in history. These ideals are usually complementary to the earthly life, in the lower races, simply filling up the gaps of a sensual existence, but becoming more and more different from the temporal existence as civilization advances. The motive is the same as in this group of day dreams. The instinct to compensate for distress and fatigue, is at the bottom of much of the reverie of religion and philosophy. It has inspired the mythic visions of Fountains of Youth, Utopias of this world and the next, heavens and havens of rest, of surcease of toil. These all represent the longing for rest of tired or lazy souls. This is expressed also in Nirvana, in a cessation of the mental process altogether. In later times the absorption ideal of the mystics, the longings to be caught up into the world principle, are expressions of the same effort to escape the wear and tear of individuality. The key note of mysticism is, as Vaughn says, rest, to be blended and lost in God as rivers lose their names and their forms when swallowed up in the ocean.

The heaven-ideals, as expressed in the Christian hymns, are full of these themes. Here rest is the predominant note, as in the hymn—

> "O Jesus, bring us to that rest
> Where all the ransomed shall be found.
> In that eternal fullness blest,
> While ages roll their cycles round."

Quite different is the following:

> I'd *part with all the joys of sense*
> To gaze upon thy throne.

So heaven ideals vary in the individual with fluctuations in the physiological condition, as shown by the returns to the syllabus.

This method of obtaining consolation for troubles, and allaying the ghosts of distressing memories, is, in its nature, similar to the hypnotic suggestion. It is a self applied treatment very like the kathartic method adopted by Breuer and Freud, for the cure of hysteria of psychic origin. Emotional disturbances cause traumatic lesions in the mental life, and though the original cause has often dropped from consciousness, the memory remains submerged and acts as a foreign body in consciousnesst and induces motor hysterical phenomena. Under this treatmen, the patient, in a hypnotic state, is made to confess the cause of the trouble. The intellectualizing of the submerged emotion forms an outlet for the dissociated mental process, and recovery supervenes.

A case quoted by Scott[1] shows this in a slightly different form. The patient suffered from hysterical symptoms resulting from an assault, the disturbance due evidently to a submerged memory. When placed in a hypnotic state he divulged the cause of the trouble, and suggestion that the offender had been brought to justice effected a cure.

The practice of confession as a religious cult, is similar in nature to all these methods of discharge of emotional disturbances, and seems to find here a psychological justification.

The *hypnotic causes* of reverie are many and varied, and include twilight, music (usually sad music), beautiful scenery, moonlight, deep shadows, the dark, gazing at the sky, in the woods, a spring morning, sunset, looking at the hills, the sea, clouds, lying down out doors, sitting in a hammock, swinging, reading, drawing, rocking, driving slowly, riding in the cars, in a row boat, sitting on a haystack, monotonous noise, low murmur of voices, hum of insects, beautiful pictures.

The fact to be particularly noted here is the profound effect of music, nature, and twilight, upon the spontaneous activities of the mind. In 75 cases reverie was induced by the hypnotic influence of natural objects. Cases from returns to a second syllabus illustrate well the effect of this group of phenomena upon the visualizing powers.

F. Good music always stirs me to reverie. A theater seems to open in the brain with a play in progress. I see and hear these creations of fancy even when attending an interesting performance of opera.

F. Music always makes me hear brooks, and birds, and summer winds, in place of the instruments or voices, which I actually hear. I am sometimes taken out of the church, or concert hall, or parlor, by the music and see flowers, butterflies, birds, trees, clouds, hills, and all delightful country scenes. Twilight makes me very happy with a shade of melancholy. Autumn is much the same. Spring rouses me to life and mental activity.

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[1]Sex and Art.

F. Twilight to me is a picture of something dreary and sorrowful. It is like a painting of one's life that has grown black with age.

F. If I go to the morning exercises at school and hear the music, I cannot attend to my morning lessons.

Heine and Schopenhauer were stimulated to composition by music.

So, too, nature sets free the currents of reverie in the soul. Many cannot study if they sit near a window where they can look out upon the hills. The temptation to day dream is too strong.

F. I learned this (effect of nature upon reverie) when a school girl. I joined a class of school girls with a craze for early morning walks, but I had to give them up or else fail in my lessons, which came in the early part of the day.

A clergyman writes: "In the spring time my mind insists on taking a vacation. I can no more study than I can fly. Books lose their flavor, I must away to the woods and the sunshine."

The returns are full of these themes, and show how closely knit together are these ideals, and nature, music, twilight and seasons.

F., 19. Music, twilight, and spring stir my strongest emotions and highest ideals.

F., 19. Music soothes me, yet it stimulates me to do something good.

F., 19. Twilight draws me nearer to God, and away from the world. It makes me wish to be better.

F., 18. Twilight makes me think.

F., 19. "Songs without words" always suggest an unsatisfied longing, and sometimes bring visual images.

F., 18. Music that is soft and sweet, suggests beautiful scenery, where everything is calm and bright.

These are sufficient to show that the day dreaming and idealizing instincts are very deep and closely related to the most profound emotions.

The Mental Content. In this connection it must be remembered that nearly all the cases were of females, and that only a few years are represented; but some hints are given as to the relation of the reverie life to the real life.

Music leads in the list of subjects around which the day dreams are formed, being mentioned in 90 cases. Posing as eminent pianists, or great singers entrancing vast audiences are the most common forms of this. Then come wealth, 51; oratory, 30; teaching, 24; center of attraction, 19; home, 18; wit, conversation, 18; travelling, 13; education, intellectuality, 11; power, influence, 10; literature, 8; love, 7; beauty, 7; virtue, 7; society, 5; the stage, 4; artist, 3; and a long list of subjects mentioned once or twice each. Though the dreams are often wild and extravagant, occasionally out of all relation to the character and ambitions of the dreamer, they are usually built up of the deepest life interests and longings. The tendency is

always to transcend the limits of possibility. The heterogenity of ideals mentioned by one individual is sometimes striking.

To illustrate this section one or two cases will suffice. The method is the same throughout.

F., 17. I often sit and dream that I am a great elocutionist or an eminent poet. In my fancy I hold audiences spell-bound with my eloquence. I can hear the applause and I go before the people again and again.

F., 17. I love to day dream, thinking of what I shall do with my money when I become rich. I dream of all the luxuries that money will buy, how I shall help the poor, etc. I think of myself as in a beautiful cottage by the sea, in a luxuriously furnished home, with a large library and everything magnificent.

Thirty-two speak particularly of dreaming of the past, a few dream over past events just as they occurred, but idealization is more common; objectionable features are removed and painful memories are transfigured. The dream projected into the future it is hardly necessary to say is the more common form of these adolescent day dreams. In two cases the dream took the form of a continued story, and was taken up each day just where it was dropped the day before. In one case the story was carried on for several weeks, in the other case for two years.

Two report that sad stories weave themselves in their mind, though the self is not the center of interest, but poses simply as an onlooker.

One case is worth quoting in full.

F. I habitually fall into such moods when no action is called for, as in driving, riding in the street cars, or on the railroad, sitting in church, when the sermon fails to stimulate thought. There is a conscious act of volition, a letting go, as an initiative, and then my ordinary self seems to be simply an onlooker. I am conscious of what is going on and diverted, amused, happy or sad according to the dream, but I do not seem to determine it in any way. I usually keep a hand on myself so that I can cut these fancies off at any moment, as when I am on the street cars. Still I must confess to passing my destination occasionally. A hay stack is the best place in the world to day dream. The smell of the hay is intoxicating, and there is something in the very act of sinking into the hay that is suggestive of lullaby. Lying is always a very much better attitude for day dreaming than any other. Lying in the prow of a boat when some one is rowing you is excellent, also lying in a hammock or on the ground. I can always day dream better on my back than on my side, and better with my arms over my head than at my side. I always day dream before going to sleep, and always dream as soon as asleep. I am quite conscious of the line that shuts the day off, quite as conscious as I am of the line which marks a day dream from an ordinary mood, and, indeed, sleep is not very different with me from day dreaming, the difference seeming to be more in the inability to stop the wandering of my fancy than in a loss of consciousness. I never quite lose consciousness in sleep. Day dreaming makes one practically independent of one's surroundings, always excepting discordant sounds, which are fatal to day dreaming.

The other day I was not feeling well, and I had to lie down for a few hours. Now I hate to be sick, but the feeling is largely cancelled by

the fact that I can indulge to an unusual extent in day dreaming. This day dream was of a young girl, whom my fancy created at the moment. I entered into her thoughts, and sorrows and longings, until I became quite lost in my feeling for her and was not at all conscious of myself in the ordinary way, until I found I was crying over her just as if she were right beside me. The sympathetic feeling has not passed away, and the young girl is now a vivid, present, personality to me, and one of my dearest mental companions. To-day is Easter Sunday. Part of the time I heard the words and felt the music for myself, but part of the time also, and quite as deeply and vitally, I am sure, for the young girl, whose presence was real to me all during the service.

This case illustrates well the literary uses of reverie. Many instances might easily be recalled of authors who saw their characters so vividly, and lived through the imaginary scenes, which they created, so emotionally, that they failed to distinguish them from reality. Dickens was often tormented by the presence of the children of his brain many hours after he had ceased writing.

Perhaps the dangers of reverie can best be mentioned here. With some people reverie no doubt is so habitual that it must be regarded as abnormal. Thought does not find its normal outlet in action, and the life is dreamed, and not lived. The actual appears dull and prosaic, as contrasted with the ideal. Such cases often represent probably an arrested or deficient motor development. As cases in the returns show, reverie is sometimes so persistent in a child as to make voluntary attention impossible, or better perhaps, attention is so weak, that thought is always reverie. In one instance a girl of 12 was obliged to leave school on account of a persistent, dreamy state of consciousness.

Féré[1] says that a dreamy mental state is sometimes voluntarily induced, and later this habit of mind becomes involuntary.

Numerous forms of pathological dream states are described in psychiatric literature. *Dämmerzustände* and *Halbtraumzustände* are frequently mentioned by the Germans. One form of this is particularly interesting. It is essentially a traveller's disease. Young students and soldiers in foreign lands are particularly prone to it, in whom fatigue sometimes induces a state of mind-wandering in which home scenes come out so strongly as to repress the present existence altogether, and the man wanders off in a semi-dazed condition.

Sir J. Crichton–Browne describes mind wanderings and peculiar half dream states, as prodromal to epileptic attacks. Another form of dream state spoken of by the same author is of interest. It is characterized by a feeling of strangeness and unreality of surroundings, "as if all things were and were

[1]Pathologie des Emotions.

not," as Tennyson says in "The Princess." A case in our returns describes a state in which "men seem to move around me like living shadows." Another case, "The world and myself seemed unreal. I seemed to live in a universe a few feet in diameter; all beyond felt shadowy and vague." These states when extreme are no doubt pathological in character, probably of neurasthenic nature, but they have a psychological interest, for they may throw light upon the sense of reality, and the feeling of self existence.

Reverie, when a habitual state of mind shades by degrees into states of divided personality, a process the first stages of which are illustrated by the case of a normal individual, which is given above. It may be questioned whether there is not always a danger here of formation of "submerged zones" in the psychic life, when thought is too much divorced from action, or when reverie is carried on habitually, in such a manner as to shut out the feeling of reality, the sense of the here and now, which is mediated by impressions from without, and the feeling of bodily contact.

The awakening is brought about by the following agencies: noise, mentioned 44 times; spoken to, 36; remember a duty, 14; spontaneous, 10; visual impression, 7; change in the current of thought, 2; something in the dream suggests the waking life, something unpleasant in the dream. When day dreaming accompanies automatic work, a pause in the movement is often said to bring the reverie to a close. The awakening came in 86 cases from stimulus received through the ear, from internal causes, 33; from visual impressions, 10; from touch, 6. Twenty-nine say that they awake with a start, 6 do not, 10 must be spoken to loudly or several times, in 5 cases it is said that calling does not awaken; they must be touched. Thus the reveries seem to be of all degrees of depth, some are disturbed by the slightest sound, with others the separation from the here and now is more complete. The feeling on being awakened is shown by such expressions as "awake with a sigh," "it is very hard to take up my daily work again," "as if coming from a sound sleep," "dazed," "feel as if I had been far away," "very sorry to be called back."

In reply to the question as to the similarity of the day dreams to hypnagogic phenomena, there were 47 answers. Thirty said reverie-dreams very much resembled the experiences on falling asleep, seventeen said they did not. Points of difference were mentioned in the negative answers. Five said the reverie pictures were more vivid than the hypnagogic, two that the hypnagogic images were more likely to be unpleasant. One says, "on falling asleep I review events, in reverie I idealize them." "Hypnagogic thoughts are of more recent events," says

another. "I have more control over day dreams." "I never see familiar places in day dreams, as I do when falling to sleep."

There is evidently in these papers some confusion as to exactly what is meant by hypnagogic images, but the general conclusion may be drawn that the idealizing element is more often lacking in these falling-to-sleep reveries. The day dream is more teleological, more constructive after a definite plan. The true hypnagogic image belongs to a lower stratum of consciousness than reverie, is fragmentary, and is not subject to control.

II.

The present stage of evolution in man is characterized chiefly, as all admit, by evolution in mental adaptation. Mental processes are undergoing the same selection which was once centered more particularly upon physical characteristics. The criterion of the value of any mental characteristic is its relation to the practical needs of life. Is adolescent day dreaming a characteristic such as selection would in the long run tend to preserve, or is such activity a waste product of growth? As far as our data go, day dreaming appears to be a habit common to normal minds, and to be particularly pronounced at adolescence in its idealizing character. These ideals seem also, although often extravagant and unattainable, to have a direct relation to the growth instincts of the mind.

With the incoming of almost a new personality at adolescence, the mind is thrown out of harmony with its environment. There is a storm and stress period, with intense longing to be and do. This intense, but vague unrest, is the raw material out of which later on life interests are to be formed. At this time day dreams appear as the first spontaneous expression in consciousness of instinct feelings, which are impelling to action, and which at this stage are very apt to become perverted. If the growth is normal, day dreaming should shade over imperceptibly into definite plans, and ambitions and action, and they form, we believe, an important step in the process of adapting to new conditions of life. The question may fairly be asked, whether the range and fervor of these day dreams are not a measure of the growth force and adaptability of the mind. In its dreams the mind tries all things, enters all walks of life, forms new associations, and, as in the race, these ideals represent the hopes and longings upward of the soul.

Biography is full of cases of day-dreaming boys who in later years developed great genius. It was not, of course, because of their day dreaming that they became great, but rich, full minds show this preliminary stage, which we believe is common to all normal minds, more strongly marked. Newton and Mozart

were both day-dreaming youths, and the former was in his boyhood believed to be of less than average intelligence.

Lancaster found that 80% of normal adolescents love solitude, 80% of defectives dislike to be alone. The love of being alone means there is a fertility of resources within. How often has solitude been the cradle of a system of philosophy or of a religion.

In the hope of discovering cases of abnormal day dreamers teachers were asked to describe persistently absent-minded children. Of the ten described, eight were apparently healthy, normal children, but with very strongly marked likes and dislikes as regards studies. One teacher of wide experience, without giving specific cases, generalizes as follows: "Boys of this type usually show decided preference for some study, usually drawing." In two cases, persistent day dreamers were regarded by the teacher as mentally deficient. One of these, on being aroused from one of his lapsed states, and asked what he was thinking about, said he was "just looking," indicating a very obvious difference between the objective distraction of a contentless mind and the subjective distraction of a mind overflowing with reveries.

It seems probable that thought is easier and better for this preliminary play process. But it must be clearly borne in mind that the normal day dreaming is a play period, a preliminary process, and that there is a clear line of demarkation between the adolescent day dreamer and the professional day dreamer, who is abnormal, and whom Hirsch describes as degenerate. His mental growth is arrested at an adolescent stage. "In later life," says Hirsch, "they fall into that class of minds whom we call dreamers, enthusiasts, and mystics. Their luxuriant fancy, directed by no purposive will, or intellectual plan, attracts them to whatever is occult, incomprehensible, and wonderful. From his youth up such a man is not habituated to look plain facts in the face, but gives himself up to building castles in air and useless trifles. He lives in dreamland."

Adolescent day dreaming appears to be a clearly marked case of the ripening of an instinctive tendency toward, or interest in, a particular subject, self-idealization. This interest is expressed in automatic mental action; effort thought comes later. How far does this same order hold for thought in general; that is, will a man think best about what he has imagined and dreamed most? Is there a stage in the mental growth which can be called automatic, being the period of inception of many mental interests?

That automatic activity precedes volition is clearly recognized in motor activity. Out of the great mass of inco-ordinated motor reflexes and automatisms, volition selects those fitted to favor the survival of the organism. No action can be performed

voluntarily which has not previously been done accidentally. Play periods are also recognized as stages in such activities as writing, drawing, talking.

The best students of animal plays now recognize them to be propædeutic. Their function is to stimulate growth, and exercise functions which will later be of use in the serious business of life. They differ from the latter in that they are carried on for their own sake, and spontaneously. No doubt the length of these preparatory periods tends to be increased by selection, so that many functions tend to ripen at longer and longer periods before their use for purposive ends begins.

In the same way reveries are to be regarded as the play periods of the intellect. They are the first expressions of interest, they stimulate growth and new associations, and lay out the lines for voluntary thought. Those of the *Anlagen* or automatisms of the mind which serve the ends of life are preserved, and intellect grows out of the vagaries of imagination. Mind is domesticated reverie. If the analogy to motor activities holds, its strength depends largely upon the richness of its play activity.

That the child's mind acts in general more automatically than the adult's, hardly needs proof. There is more tendency to dream out beyond facts. With both the child and the savage, the real world, the ideal world, and the dream world, are but imperfectly distinguished from each other. There is a constant tendency toward entification of subjective phenomena. The child does not correct his hallucinations, and he often contributes too much to his perceptions, he confounds his reveries and dreams with his experiences.

Our returns are full of such cases, *e. g.*

F., 24. I once had a whitewashed ceiling over my bed, that was a whole picture gallery.

F. When a girl of seven I saw a majestic figure sitting in the clouds and writing in a huge volume. I ran screaming to my mother, never doubting the reality of the vision.

F. I took my favorite heroes out of books and carried them along with me in all my adventures, and I always knew that I was day dreaming more than I ought.

F. So vivid were my dreams at this period (7 to 11) that on recalling them now, it seems like the remembrance of a real occurrence.

The wonderful fertility of the child mind, in seeing things in clouds and fire and water, shows how slight the stimulus may be which sets off the trains of mental activity.

The growth of the mind has often been compared to the growth of science, and in many respects the analogy appears to be correct. In general, myth, imagination, and speculation precede investigation. In the accomplishment of a definite mental task, the same process often takes place in the individual mind. Reverie is often declared by thinkers to be the best preparation for hard

mental work. The first glimpses of great truths have often been caught in reverie when the mind was distracted from work. Helmholz says that his best thoughts came to him as he was wandering in the Alps.

A gifted writer says: "A day or two of solitude and reverie in the woods is the best preparation I can have for any mental work."

A scientist says: "To dream over facts is with me the first step. I study them later."

Stedman says that poetry has always blazed out the way for investigation. Dreamings out beyond the horizon of facts show the tendencies of thought. The same is expressed in such phrases as "Theories come from the soul, and investigations from the sense world," and "The worst errors of the speculators are often better than the truths of the investigators." "The investigator, if he would leap to greater discoveries, must have poetic insight and imagination. Those of our geologists, biologists, and mechanicians, who are not poets in spite of themselves, must sit below the seers, who by intuition strike the trail of new discovery. The poet has been prophetic in almost every kind of knowledge, evolution not excepted."

This expresses what we have found to be true in adolescent day dreams, that the first expression of interest is in imagination and reverie.

Thought must be regarded as in some way a unifying process, which brings the brain areas into closer relations. If Flechsig's map is correct, this is clearly shown on the physical side. Voluntary thought, vigorous mental work, uses the association areas, and brings the brain forces into co-öperation.[1] The motor and sensory parts are both involved, tension and attention go together, and there is an erethism more or less general of the highest level. Whether in such states there is actual breaking of contact with lower parts of the brain cannot, of course, be determined, but the prevalence of motor and mental automatisms show that there has been a release of inhibitory control. Hughlings-Jackson's well-known theory of levels provides for a more and more independent action of the different levels as evolution goes on, Parish thinks that when one brain area is attentive, other parts are dissociated. The occurrence

[1] The mind of the child is less closely co-ordinated than that of the adult, corresponding to different stages in the development of association areas. For the child the ideal mental activity is frequent change in order to develop all possible functions. Perhaps for the highly developed, more perfectly co-ordinated adult brain, the ideal would be such mental activity as would bring all brain areas into co-operation and exhaust all automatisms. Such a view offers a ready explanation of the complete psychic decapitation, which is often displayed in the recreations of intellectual workers.

of extraneous associations, which occur often during intense thinking, indicate the possibility of automatic neural processes accompanying the higher, and unknown to consciousness. This is a rough picture of what occurs in what we may call absorption, on the highest level of consciousness. But absorption states may occur on a lower level of consciousness. This constitutes what in general we designate as reverie. Then the highest association areas are inactive apparently. On this, which may be termed the automatic level of consciousness, there is more independence of single groups, so that incipient reveries may dominate consciousness, yet with a low tension. The mind then acts automatically, without effort. Often the motor element is not involved at all, as has been shown above.[1] When, however, the intensity of consciousness rises to an abnormal height, we again have the mind acting automatically, in all degrees of efficiency and deficiency. Automatic mental actions occur, then, under two exactly opposite conditions, hypotension and hypertension of consciousness. In the latter group belong all the sthenic ecstacies, second breath, mania and the like; in the former, the reveries, dementia, etc.

These two conditions are well illustrated by Oelzelt-Newin's description of the two types of genius.

One is in a condition of reverie; there is anæmia, the muscles are relaxed, the face is pale, the eyes are closed or fixated upon a distant point.

The condition of the other is exactly the reverse: there is hyperæmia, the body is erect and tense, the eyes glisten.

These are the imagination-states, in which, according to this author, the mind thinks original thoughts.

If this statement of the automatic action of the mind is correct, and reveries are most often spontaneous activities of lower levels, we must now look for the origin of these activities, which the dream life and the imagination make use of. We find that in the individual life memories become detached or submerged and rudimentary. This is well illustrated by the dream phenomena, spoken of as the traveller's disease in a preceding section. Both in the life of the individual and of the race we find diminishing psychoses. We are not concerned here with the process, whether by a Lamarckian use and disuse or by selection. The only explanation which is large enough to account for many of all the activities of the automatic levels of

[1] Possibly in exceptional brains of a high order there occurs such automatic action of the highest level. Inspiration physiologically expressed may be regarded as a highly anabolic condition of the highest level. Stedman says there is an imagination of the intellect and its utterance is of a high order, often the prophecy of inspiration itself.

consciousness is that they are survivals, at least in the form of instincts and innate tendencies, of psychoses, some of which once played more important parts in consciousness than at present. Here we must look for the origin of much of the automatic action and many of the peculiar habits of the mind. Such *Anlagen* of the mind have doubtless different rates of growth and degrees of persistence, but their development comes from within. Experience may add to them furnish the conscious content, but the motive force is the inner growth.[1]

To speak of reveries as chance plays of the sensory apparatus is but a partial explanation. A part, perhaps a large part of what we call mental distractions, have such an origin as is indicated here.

We have found that day dreaming is a common phenomenon of normal adolescent minds, and have reached the conclusion that such automatism (which on the neurological side may be regarded as rapid growth, formation of new association paths in a high anabolic nervous structure) naturally precedes what we call effort thought, that the function of reverie, and of imagination in general, is to exploit the nascent organs of the mind, and to widen out the consciousness of the individual, and to serve as preparatory steps to more voluntary mental activity.

Some Pedagogical Suggestions. If the conclusions reached in the preceding sections are well founded, there can be little doubt as to the general nature of the pedagogical application. If "imaginations" are preliminary steps in mental development, attention must be given to determining their normal growth. They become dangerous only when hypertrophied; then there is arrest. It would be unnecessary now to prove that the proper functioning of the higher stage depends upon the completeness and fulness of the preparatory process.

The periods of the greatest activity of the imagination are not clearly determined. Certainly at adolescence spontaneous action of the mind is clearly marked and thought is often creative. In regard to the early nascent period of the imagination, usually placed at 4 or 5, we have no data at hand. Some few studies tend to show that from 8 to 10 there is a rapid rise in the power of constructive imagination. Wherever crystal gazing has been practiced as a religious cult, children of 8 or 9 have been regarded as the best seers. At 9 or 10 there appears to be an unusual spontaneous activity of visualizing powers, as is shown by the data given in the appendix to this article. The same study indicates in a general way that children in the third grade (9, 10 and 11) are more original than children a

[1] See Some Mental Automatisms cited above.

little older. Mrs. Barnes,[1] in her study of the historical sense in children, finds that imaginative inference has its sharpest rise at 9 and 10 and reaches its highest point at 12; again at 16 there is an increase. Croswell finds imaginative games most frequent at 4 and 5 and 9 and 10, with the difference that in the early period, the imagination is more imitative and in the latter more creative. The significance of this imagination period (if it exists) is not clear. Oelzelt-Newin[2] thinks that the sudden appearance of a group of instinctive fears at 5 is a great stimulus to the imagination. It is possible that some such nascent instincts underlie the second period. The year from 8 to 9 the doll interest is at its maximum, the love of animals and social interest are very strong also. Sometimes also a strong affection for the other sex makes its appearance at about this time. There are some historical examples of this, *e. g.*, the case of Byron. Lancaster[3] quotes a case as follows: "A real person was desparately loved for the space of three months at nine." Oelzelt-Newin treats of this phenomenon at some length. He finds that at about the eighth year the imagination has a rapid growth on account of the appearance of new impulses of a sexual nature which have "bestimmte körperliche Parallel erscheinungen." This is not to be confounded, he says, with puberty, which never comes so early. If this is true, there is an important field here for further pedagogical study. It is possible that this author has mistaken cause for effect, and that the psychic phenomena excite the physical. There is a tendency under the influence of an intellectual environment for the sensory development to be pushed ahead of its corresponding motor termination. Is it not also possible that many mental traits, which in the race development have grown out of, or at least followed sex, have been accelerated and have nascent periods of growth anteceding the physical side and which perhaps act upon the physical, either to accelerate or retard? In this way higher mental characteristics which are of importance are given a longer play period. The doll interest, representing both a parental and a social instinct, may be mentioned as a possible example of this.

The question may fairly be asked whether pedagogy has not failed to give full value to the spontaneous activities of the mind. It is possible that there are periods in the mental development when such play activity should take precedence over all others, when the mind is not especially adapted to the systematic acquirement of facts or the logical treatment of them.

[1] Studies in Education, p. 52.

[2] Oelzelt-Newin: Phantasie-Vorstellungen, p. 66 seq.

[3] Psychology and Pedagogy of Adolescence: PEDAGOGICAL SEMINARY, Vol. V, 1, p. 88.

During such periods, which may correspond on the physical side to times of most rapid growth of structure or associative connections, it is possible that too much forced activity may antagonize growth.

How can the imagination be trained? In the first place ought not more attention be given to the visualizing powers? Galton says: "I believe that a serious study of the best method of developing and utilizing this faculty, without prejudice to the power of abstract thought, is one of the desiderata of the as yet unformed science of education."

The literature of biography, history, myth and story is, of course, full of material, some already adapted for use in schools, some which might easily be arranged. Every one, for instance, recognizes the value of telling stories to children, but ought not story telling be made a more important part of school and home teaching?[1] The mind of the child is more often starved for want of good stories, which will stimulate the imagination and stir the emotions, than perverted by a superabundance of stories. President Hall has emphasized the need of the professional story teller, whose work would be simply to tell stories to children. There is certainly a charm, and mystery about the told story, that the read story utterly lacks.

The scene which the mother of Goethe describes is the ideal pedagogy in this respect. She says: "I could never be tired of telling them, as long as he was not tired of listening. I represented fire, water, earth, and air as beautiful princesses, and gave a meaning to all that goes on in nature. I believed in it myself more implicitly than my listeners did, and when we pretended there were roads between the stars, and that we should sometime live in stars, and thought what great spirits we should meet up there, nobody was ever more eager than I for the hour of story telling with the children, nor more vexed when some invitation I had received prevented it. There sat I, and there was he with his great black eyes devouring me, and if the fate of any favorite did not go right according to his sense, I could see how the angry vein would swell in his forehead, and how he would choke down his tears. When my imagination fell short it would often be patched out by his." Ought not children to be encouraged to tell stories, and write stories? More of this might be done in school than at present. The imagination might be actively employed, also, in description of imaginary animals, scenes, games, etc.

This appears to be a line of natural interest to the child. A

[1]There is no doubt that in all lines of work which are mentioned here very much is being done. What is urged is a more systematic training of the imagination, with more definite knowledge of its psychological importance.

class of children from 8 to 10, who were asked to describe an imaginary animal, showed very great interest.

The treasures of biography have hardly been opened up. The nature of the day dreaming at adolescence indicates the great service which properly written biographies might perform, both in the way of teaching history, and as stimulus to the adolescent mind. This, perhaps, is the most clearly and definitely indicated pedagogical conclusion from our data.

Drawing, also, may be made very useful in training the imagination. Nearly all imaginative children, and especially the dreamy children described in our returns, were said to be particularly fond of drawing.

And then poetry, which seems to have a place all its own in imagination training. Schopenhauer defines poetry as the art of exciting by words the power of the imagination. Verse is emotional, it stirs the imagination even if there is not a word of sense in it. Music has this effect perhaps as strongly marked. Young children are wonderfully susceptible to the effect of rhythm. A case is cited by Bolton[1] of a boy of five who was so excited by a passage from the Pied Piper of Hamlin, that he would run and hide.

These were the words:

> "Into the street the piper stept,
> Smiling at first a little smile,
> As if he knew what magic slept
> In his quiet pipe the while."

The effect upon the more mature imagination of the following lines from Bryant's Waterfowl is perhaps not less marked.

> "Through the desert and illimitable air
> Lone wandering, but not lost."

A detailed study is needed of the effect of meter upon the child mind. We need a psychological study of poetry for children and poetry by children. Young children often talk in rhythm and ryhme.

Then at adolescence comes the poetic period par excellence. Here, also, the study is incomplete. We have few data bearing upon the poetic instincts of the adolescent, but that there is a possibility of a more systematic utilization of poetry, with special reference to the training of the imagination at this period, can hardly be doubted. As to the writing of verse, we have many historical cases of men who have become distinguished in lines of intellectual work, which are commonly supposed to be antagonistic by a poetic temperament, who in their youth wrote poetry. Is the impulse to seek expression of emotion in verse an instinct of normal adolescence? Can it be utilized? It

[1] Bolton: Rhythm, *American Journal Psychology*, Vol. VI, p. 165.

would seem that a little of this is a good thing; that it widens out the imagination, helps to express deep instinct-feelings, and makes for a healthy kind of sentimentality. Stedman speaks of the "process by which the epic and dramatic chieftains appear to reach their creative independence. As a preliminary, or at certain intervals of life they seem to rid themselves of self-consciousness by its expression in lyrics, sonnets and canzonets."[1]

To sum up this section, it seems as though the imagination ought to be allowed freer range. We have here, of course, the perennial problem to determine just how far the mind should be allowed to run wild, to be original; how far it should be trained toward conventionality. But does it not seem that pedagogy has in the past stood in the way of originality, of creative thought? Has it not gone too far in its conventionalizing tendencies? It is pleasant to think that the mind tends to be creative. Should there not be more emphasis put upon the training of the essentially creative faculty, which is the imagination? Would it not keep the mind more plastic and help prevent that early crystallization that makes new thoughts impossible?

Appendix.

It was intended, in the second half of this paper, to study imagination genetically, but the work has not been carried out. One group of data which was gathered is, however, regarded as of sufficient value to present. The natural starting point for the study of the imagination appears to be in such phenomena as the cloud fancies and imaginings about sun, moon and stars, in which children's minds are so fertile. Here are myths no less ingenious than those of history, and metaphors not different in kind, and often not in quality, from the highest flights of poetic imagination.

An Imaginary Animal.

Six hundred and forty children were asked to describe in writing an imaginary animal. Of these, 330 (148 boys and 182 girls) understood the question well enough to make an intelligent attempt at an answer. Most of the remainder understood imaginary as representative rather than constructive, and simply described some animal they had seen. The length of the descriptions, using as a unit a single phrase, or what might better be called a single conception regarding some part of the animal, or some quality of the whole, as "long, slender legs," "one eye red, the other blue," is as follows: average for boys, 5.58; for girls, 5.66.

For fear that teachers would suggest too much, they were

[1] The Nature of Poetry, p. 10.

asked to give no explanation. In one school, the effect of accidental suggestion was very noticeable.

The average length of replies, according to age, was as follows:

Seven and eight, boys 6.80, girls 6.71; nine, boys 5.52, girls 4.95; ten, boys 5.37, girls 4.40; eleven, boys 5.10, girls 4.65; twelve, boys 4.10, girls 5.33; thirteen, boys 6.28, girls 6.07; fourteen to seventeen, boys 6.83; girls 8.22.

The tail is the most popular member, being described 216 times; next comes the body (these include shape of body, description of hair, feathers, etc., 188); head, 187; legs, 158; eyes, 135; size, 97; feet, 83; horns, 73; ears, 71; mouth, 41; teeth, 29; nose, 28; neck, 22; face, 8; mane, 6; tongue, 4; trunk, 4; tusks, 2; nails, 2; eyebrows, 1.

Size of the Animal. Large, tall, 19 cases; large as or larger than an elephant, 10; large as cow, 10; horse, 9; dog, 5; bear, 3; hippopotamus, 3; sheep, 2; man, lion, fox, camel, lizard, giraffe, warship, 2 each; pig, 1. In some cases dimensions were given as follows:

Ten cases, 5 to 10 ft. long or high; 7, 2 to 4 ft; 12 ft., 13 ft., 20 ft., 30 ft., 800 ft., 525 yds., 2 rods, 1 ft. high, ½ inch, 1 inch, one each; one was mentioned as small. No one described a microscopical animal, and only two based newness upon unusual smallness.

Color. Thirty-four animals were spotted or striped, with various combinations of colors, brown, 18; black, 16; white, 15; green, 14; red, 12; yellow, 9; gray, 4; pink, 4; blue, 2; plaid, 1; dark, 1; beautiful color, 1.

Eyes. Color was given in 33 cases, 11 were green; large, 32; eyes like some animal, 21; glaring, fiery, etc., 10; two eyes, 12; other numbers from 4 to 500, 11; one eye, 7; small, 7; round, 1. One drew a picture of the eyes.

Head. Like some other animal, 119; large, 33; more than one head, 21; round, 6; color, 3; square, 2.

Ears. Like some other animal, 23; long, 18; small, 7; one long and one short, 1; no ears, 1.

Horns. Like some other animal, 13; two horns, 10; no horns, 9; long, 7; colored, 6; large, 4; three horns, 3; one horn, 3; silver, under his mouth, in his mouth, horns in all directions, horn on one side, ear on the other, middle of back, top of head, 10 horns; 5 on one side; 2 on one side; 4 horns; one at end of nose.

Horns seem to have a particular interest. The number of times they are mentioned seems large, when it is remembered how few species have horns. They are also, as will be seen from the above list, peculiarly variable organs.

Neck. Long, 17; like giraffe, 2; slender, 1; beautiful, 1.

Mouth. Large, 17 ; like some other animal, 7 ; long, 3.

Teeth. Sharp, 9 ; large, 5 ; long, 4 ; like some other animal, 3 ; small, 1 ; one on each side, one in upper jaw, one in lower.

Tail. Like some other animal, 84 ; long, 48 ; short, 17 ; 3 to 900 tails, 16 ; bushy, 14 ; color, as green, pink, 8 ; large, 7 ; little, 5 ; no tail, 5 ; some had hay, straw, flowers, feathers on the tail, others were tipped with point, fish-hook, ball, one had a tail in the back of his neck.

Body. Like some other animal, 92 ; small, 8 ; large, 7 ; long, 4 ; square, 1. The body seemed a very uninteresting part of the animal, and little originality was shown here.

Skin, Hair, etc. Hair, 9 ; feathers, 6 ; fur, 5 ; pins, 3 ; lace, 2 ; clock, carpet, sheds, straw, scales, wool, no hair, one side hair, one straw, horns all over, one each.

Legs. Various numbers from 1 to 10,000, 68 cases ; like some other animal, 48 ; long, 22 ; slender, 14 ; short, 12 ; front legs short, hind legs long ; front legs thin, back legs stout ; wooden legs ; no shape, except round ; double rows of legs, etc., etc.

Feet. Like some other animal, 35 ; webbed, 15 ; various numbers from 1 to 100, 14 ; claws, 6 ; small, 4 ; large, 3 ; like a hand, 1 ; two large and two small feet, 1.

Motion. Motion is mentioned in 44 cases, great speed is mentioned 13 times, *e. g.*, fast as a bicycle, as a train, etc. One animal can run, swim or fly, one can jump 150 feet, one runs tail first, two cannot run at all, one has an electric motor to propel him when tired.

Feeding habits are mentioned 28 times. The animals eat : anything green ; birds, boys, teams, brick and eggs ; boys, chalk, cats, and dogs ; birds and stones ; bad boys ; raw meat and rags ; swill ; grass and clover ; can't eat ; anything ; stone walls ; leaves ; other animals ; hay ; worms ; snakes ; ice.

The habitat is given in 16 cases, age in 2 (95 and 100 years), noise, 13 times ; general moral character, 7 ; 3 are gentle and 4 are wild or look mad.

In 37 accounts by the older children, taken at random, 7 have followed a definite order, beginning at the head or tail, and describing the parts in order. In 54 papers by the younger children, examined with special reference to this point, only two have followed any apparent order. They are quite as likely to begin with the eyes, then describe the tail, then return to the head, in the meantime forgetting what was said at first. In nearly all papers description consists of touches at salient points of interest. Often one idea is made to go around for all the parts mentioned. Points where no chance for originality was seen were omitted altogether.

The most common production is an *animal made up of parts of different animals.*

These are often strung together by a kind of speech automatism, without attempting to form any picture of the creature as a whole.

The younger children, on the whole, produce a more impossible animal than the older ones. It is likely to have wooden legs, glass eyes, to be trimmed with lace, to be pink, blue or some unusual color. The older children conform more closely to natural animal architecture. *Size* comes next as a means of originality. The animal is built a good deal like some domestic animal, on a large scale. There is no attempt to make an unusually pretty animal. They are nearly all grotesque and dreadful.

Another new species is the animal with members multiplied or displaced. He has more than the usual number of eyes, heads, tails, or he has a tail in the middle of his back, or a horn under his chin.

Where these different plans are mixed, great size is usually the most constant feature. Another form of newness is asymmetry. The animal has his eyes, perhaps 10 in number, all on one side of his head ; or one long ear, and one short one. Among the younger children color patchwork forms an idea. In general a single idea is carried through the whole description, though there are many exceptions to this. The older children more often use a number of distinct ideas.

The following are fair samples of the methods employed.

B., 11. I can see an animal with a head like a dog, a tail like a fox, a neck like a cat and legs like a rooster.

G., 11. I can see an animal when I close my eyes. Its eyes are pink. It has yellow stripes all over its body and a green tail, and an orange color mane. There are ferns out of its body tied with red ribbon. Its teeth are made of shell. I can see the whole of it at once.

B., 15. He lives in the sea. He is a large, brown animal, with large, green eyes. His mouth is large enough to swallow a ship. He has six legs larger than elephant's legs, and fins with which he swims. He is a very ugly looking monster.

G., 14. He has four black eyes, four horns, one at the end of his nose, three tails, and four legs.

What does the child mind do when it is confronted with the task of creating something new?

Doubtless the expression, "an animal," tends to call up some more or less clear visual image of a creature, some specific animal. This serves as a framework to build upon. Nearly all the younger children say they can see the whole of their animal at once. This is less frequently mentioned by the older children. Still there is a very evident failure to conceive the

animal created as a whole. Parts are often described in ways which are mutually exclusive. There is little attempt at methodical description, and no apparent knowledge of the fact that a description of four or five disconnected parts does not convey a definite picture to the reader.

Hypnagogic Phenomena.

Eight hundred and twenty-six children were asked to describe what they see at night after the eyes are closed and before falling to sleep. 58.5% of the children from 13 to 16 yrs. see things at night ; 12 yrs., 59.4% ; 11 yrs., 62.2% ; 10 yrs., 65.0% ; 9 yrs., 62.6% ; 7 and 8 yrs., 60.0 % ; 6 yrs., 64.2%. In the first grade the children were questioned separately and their answers written by the teachers. Although these figures indicate that there are more of these visual phenomena, the younger the child, there are other facts which must be taken into account, *e. g.*, the tendency to confuse these entoptic phenomena with dreams, which may be greater in the younger children.

Stars were most frequently mentioned, being spoken of in 151 cases, colors 145, people and faces 77, animals 31, scenes of the day 21, flowers and fruit 18, pictures 15, God and angels 13.

In answer to the questions as to what they had ever seen before falling asleep which frightened them, and what that pleased them so much that they had tried to see it again, the following were mentioned :

Frightened : by people, 156 (27 were ghosts) ; animals, 75 ; things, 11 ; dark, 5 ; accidents, 5. Pleased : by people, 146 (17 were angels) ; things, 52 ; animals, 18 ; colors, 28 ; scenes, 14 ; flowers and fruit, 9 ; heaven, 1.

The age at which these occurred was given in 302 cases. Three years, 3 ; four, 6 ; five, 10 ; six, 36 ; seven, 12 ; eight, 30 ; nine, 61 ; ten, 81 ; eleven, 40 ; twelve, 18 ; thirteen, 5.

This, taken in connection with the fact that the largest per cent. of the cases in the table given above is found at ten years, may possibly indicate a peculiar sensitiveness of the visual centers at about this age. Further data are needed, however, to confirm such a conclusion.

There is probably an earlier period, also, in which these phenomena are prominent. The point raised here is whether there is a rapid rise again at 9 or 10.

In preparing the above paper many obligations have been incurred. Thanks are due to President Hall for the subject, and for assistance in the work ; to Dr. W. H. Burnham and Dr. E. C. Sanford, for suggestions and criticism.

Special acknowledgements are due to the following, who have

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THE ONLY CHILD IN A FAMILY.[1]

By E. W. BOHANNON, Fellow in Psychology, Clark University.

The present study was briefly outlined in an earlier one of "Peculiar and Exceptional Children." Forty-six of the 1,001 individuals described were named as "only children," though none of the questions of the syllabus asked about such children, either directly or indirectly. It appeared, therefore, that only children are either more numerous than usually supposed, or that they are much more frequently distinguished by peculiarities than children generally.

The statistics of Ansell[2] are of interest in this connection. They relate to families of England and Wales, and although they may show a higher average fertility than we have a right to claim for this country, they are valuable for comparative purposes here. He found in 1,767 fertile marriages contracted at an average age of about twenty-five years that, after allowing sufficient time for fecundity to show itself, there were 131 unions resulting in only one child, or one out of every thirteen of the fertile marriages. The average fertility of the 1,767 marriages were six. Thus the proportion of only children which they show is one in every 78, while the proportion found among the 1,001 "Peculiar and Exceptional Children" is one in less than every 22. A marked tendency to peculiarities was therefore suggested for only children.

In the second place, after arranging the 1,001 reports into three groups, to indicate that the peculiarities were "advantageous," "disadvantageous," or "neutral," it was found that two-thirds of the 46 only children belonged to the group having "disadvantageous" traits. Furthermore, this group represented but 448 of the reports, or considerably less than one-half of the entire number. This offered the second suggestion, indicating in an emphatic manner the general character of the peculiarities of only children as a class.

[1] I am indebted to President Hall for valuable suggestions, and to Dr. W. H. Burnham for helpful criticism, made in behalf of the present study. I am also under very great obligation to all those who have co-operated by sending in reports of their observations, but especially to Miss Lillie A. Williams and her students of the State Normal School at Trenton, N. J., and to Prins. E. O. Holland and F. M. Ingler, of the High Schools at Rensselaer and Marion, Ind.

[2] Duncan: Sterility in Women, p. 4.

In the third place, it was strongly indicated that they have less social ability than other children, and that their relations with others, especially those of corresponding ages, are characterized by a greater amount of friction.

Fourth, it was apparent that they very often indulge in imaginary companionship to compensate for inadequate real companionship.

Fifth, unusual precocity was indicated.

Sixth, it appeared that they neither enter school so early, nor attend as regularly, as other children.

Seventh, it was suggested that the only boy, the only girl, and the youngest child, have many of these traits in common with the only child.

Eighth, and finally, it was stated in nearly every instance that they were indulged to an unusual degree.

These suggestions, though derived from a very limited number of cases, were so emphatic, and are of such decided importance, if generally true, that it was determined to ask for information of a more detailed and comprehensive character. Although the number of returns received has not been great enough to warrant the assumption of general validity for conclusions derived therefrom, it is strongly believed that a number sufficiently large to give such a basis for inference would not yield materially different results. Excepting the 46 reports already referred to, the study is based upon answers to the questions of the following syllabus.

The Only Child in the Family.

Give age, sex, nationality, and describe the temperament, complexion, and general health of the child briefly. Has he brothers and sisters dead? If so, how many? Is he the first born? How long did the others live? Does the child go to school? Regularly? Commenced at what age? Get along well with other children and in work? How much time does he spend in play? The favorite games? What plays at home? What are the child's best traits? Worst traits? Is he precocious or dull? Has he any mental or physical defects? Name them. What subjects best in? What poorest in? What has been the home and school treatment? What treatment do you recommend?

Age of parents at birth of child? How long had they been married at the birth of child? Are the parents still living? Health, habits, occupations, temperaments and position in life? How many brothers and sisters had *they?* Do they (brothers and sisters) have good health? In so far as above questions apply, describe twins, the only boy, the only girl, and the youngest child, in families.

State anything else you may think to be due to the fact that they are the only child, only boy, only girl, the youngest child, or twins.

CLARK UNIVERSITY,
Worcester, Mass., March 30, 1896.

Altogether, 481 children are dealt with in the study. 381 of these are only children, 54 are only boys or only girls, 32 are the youngest children, and twelve are twins. The reports for the 381 only children are direct and practically complete answers to the questions of the syllabus in 256 instances, while 81 relate only to health, and the other 46, as has been indicated before, come from reports on "Peculiar and Exceptional Children," and contain information about age, sex, nationality, health, heredity, conduct, and home treatment. The 81 were made by members of Clark University, 95 were made by the students of the High Schools at Rensselaer and Marion, Indiana, and 259, excepting a small number of individual reports, came from the students of Miss Williams in the New Jersey State Normal School at Trenton.

Unless otherwise stated, any statistics that may be presented, refer only to only children, of whom it may again be said that there are 381 mentioned under at least one of the rubrics. Thus the sex is given in each case but no other point is mentioned 381 times. The number of children referred to will be indicated as the various topics are introduced.

The persons making the reports have regarded as only children, not only the ones who have never had brothers or sisters, but also those who have been left alone by death of others, and, in two instances, those who are only children for a number of years before the birth of others. The environmental conditions of these three classes are essentially the same, for the dead brothers and sisters seldom lived over five years, and, in nearly all the instances where they are mentioned, they lived less than one year. Furthermore, the surviving child is not the first born in more than half the number of instances, the other, or others, often dying before his birth. In a few cases it cannot be assumed that there would not have been other children had not the parents been divorced, or had not one or both of them died.

The average age of 134 girls is twelve and ten-thirteenths years, of eighty-six boys it is eleven and eight-ninths years, and for the 292 of both sexes it is twelve and two-tenths years. One is 2 years old, 5 are 3, 6 are 4, 4 are 5, 10 are 6, 15 are 7, 24 are 8, 22 are 9, 32 are 10, 19 are 11, 26 are 12, 17 are 13, 21 are 14, 8 are 15, 24 are 16, 15 are 17, 15 are 18, 7 are 19, 7 are

20, 2 are 21, 3 are 22, and 1 each 31 and 35. The youngest is two and the oldest is 35. 161 belong to the years from 8–14 inclusive. The fact that relatively so many more are given for these years is probably due to circumstances connected with the persons making the observations. Nearly all of the reports come from teachers, those preparing to teach, or from pupils in high schools. It seems but natural that they should have named more for these ages than for others. Yet it would be interesting, in the light of what may be presented later, to know whether the average age attained by only children as a class is equal to that attained by people generally.

Of 381 of both sexes, 215 are females and 166 are males. The greater number of females is probably explained by the fact that more females send in reports, but if the opinions of writers who have considered the subject are to be relied upon, we would expect to find a somewhat larger proportion of females than of males, as only children.

190, out of 240, are said to be Americans, 8 Germans, 5 English, 2 Jews, 2 Scotch, 2 Irish, 3 English-German, 3 Scotch-Irish, 1 Welsh-Irish, 1 Jewish-American, and 1 Welsh-American. There are 50 of non-American parentage, 17 of whom are the results of marriages between persons of different nationalities or races, a reference to which will be made in another connection.

The statements thus far made will suffice to give a general idea of the preparation and character of the data to be presented. Let us see whether its significance is in harmony with the general suggestions already outlined.

Health.

Following are some condensed reports of cases that are typical examples, not only of the health, but of other conditions peculiar to such children. In condensing the original reports their expressions have been modified as little as possible, though quotation marks have not been used except in one or two instances. Besides the evidence which a knowledge of the preparation of the reports offers as to their trustworthiness, still other evidence of reliability is furnished by reading them through. Each report will be numbered for convenience of reference.

1. M., 16. Irish descent. Sanguine. Health fairly good, but must take care not to drink tea, coffee or other stimulants. Neither can he eat much vegetable food without feeling great discomfort. He is the first born, but had a brother who lived to be three and one-third years old. Began school at six and attended regularly. He gets along with some of his friends quite well but with others he disagrees. Spends much time in play, which is active at school but quiet at home. He is truthful and dislikes sham; also stubborn, and given to contradiction

of his elders. He is precocious. The right leg is paralyzed from the hip down. Both at home and at school he has been allowed too much of his own way. The mother was about 25, and the father 33, at the time of his birth. They had been married two years, and are still living. The mother has good health, the father only fair. Both have good habits and are conscientious in the discharge of duty. The father is a railroad station agent and the mother helps him in this work. He is of a bilious temperament, while she is sanguine. The mother has four sisters and two brothers, the father two brothers and two sisters. All seem to have good health.

2. M., 10. German-American parentage. "The father is a German of culture from a well known German university. The mother has one brother living and one, who was very delicate, dead. She is herself a chronic invalid and never, as a girl, took any interest in life. She is cultured and refined but lacks the will to do. Her only object now seems to be to properly rear her boy, who was an unwelcome addition to the family and for years was tolerated out of necessity. The mother-love seems to have asserted itself finally. The boy attended kindergarten at five, had a private tutor at six and entered the public school at seven. He speaks German and French as well as English, and also plays the piano well. Is a *real girl-boy*, sews, makes tiny doll dresses, cuts and fits them, sews on sleeves and puts on belts. He has whole sets of bed clothes, pillows and mattresses stuffed with cotton, and the pillow cases made on the machine. He is a sturdy, manly fellow, always taking his hat off as he enters the room, speaking in a soft voice, and taking part in conversation. He begged to be allowed to stay at home this week to help sew, because I was helping his mother with her sewing. He does not like school and seldom plays with boys. He says they are too rough and fight, and are not nearly so nice to play with as girls. He says boys tease him because he likes girls better, but that he does not care. He seldom quarrels with his playmates and is good and obedient generally. He is usually happy but sometimes becomes annoying by reason of the numerous questions he asks. He has rather definite and advanced notions of what he is to be when grown up. The mother seems to admire and honor her very intellectual German husband, and is a model wife, but she does not seem to have any love for any one save the boy. She was never happy with her own mother and feels she was never understood by her, hence she thinks it very important for her to avoid the mistakes from which she suffered. The mother was 26, and the father 45, at the time of his birth. The mother feels her duty very strongly and is in danger of overdoing the watching, and of making him too dependent on her own frail self. He is very different from other boys I have met."

3. F., 11. American. Nervous. Delicate, takes cold easily, and cannot stand much hardship. She is the only child born to her parents. She began school at seven and attends regularly except when ill. She does not get along well with other children, but succeeds fairly well in work. Not much time spent in play, which is always of a quiet sort. Her best traits are obedience and politeness; her worst is thinking herself better than other children. She is neither dull nor precocious, yet quite studious. The mother, especially, is very strict, but her teachers have usually been more considerate. The mother was 35, and the father 37, at her birth. They had been married five years, and are still living. The father has good health, but the mother has always been delicate, and since the birth of the child has been an invalid the greater part of the time. The father is superintendent of a railroad. The family occupies a good social position. Both parents are nervous. The father has one half-sister, the mother, two brothers and two sisters.

4. F., 12. American. Nervous. She has very poor health and is sick a great deal. She has three sisters and one brother who died before her birth. Only one of these lived to be five years old. She commenced school at seven, and but for bad health her attendance would be regular. She has little or no trouble with other children, and succeeds well in her work, as she is very studious. She plays little and in a quiet way. Her best traits are truthfulness, obedience, and affection; the worst is bashfulness. Precocity is very noticeable. The home treatment has been characterized by great indulgence. The father has always called her "Baby." At the birth of the child the ages of the father and mother were 36 and 34 respectively. They had been married 14 years. Their health is very good as are also their habits. The father is a dairyman. The mother, with hired help, keeps the house. They both have irritable temperaments. The mother has four sisters and two brothers; the father, five sisters and two brothers. Two of the mother's sisters have bad health, and the father's brothers and one of his sisters do not have good health.

5. F., 9. American. Nervous. Not robust, takes cold easily, and seems unable to resist disease. Has never had brothers or sisters. She began school at 7 but has not attended regularly on account of bad health. Her relations with other children are troublesome. Success in work is fair. She plays a great deal and has much company. The games are usually those demanding considerable activity. The best traits are truthfulness and affection; the worst are selfishness and passionate temper. She is very precocious. Has been greatly indulged at home, and is a favorite with the teacher. She ought to be required to "give up" to other children. At the birth of this child the father was 27 and the mother 28. They had been married two years. Both are still living, but the mother is never in good health. Their habits are good; the father is a partner in a general merchandise store. His temperament is sanguine, and that of the mother, nervous. The mother has one sister, and the father one brother. These have good health. The child is an only grandchild, and is subjected to the combined indulgence of grandparents, uncles, aunts, etc. One of the grandmothers lives with the child's parents, and always intercedes when any strictness is suggested.

6. F., 8. American. Nervous. Health is quite poor. She is subject to severe headaches, and in the winter time to bronchitis and croup. There have been no other children. She first went to school when 7, and has not attended at all regularly. The desire to have her own way has prevented her from getting along well with other children. In her work she succeeds fairly well. When alone she plays little and generally inclines to the imaginative games. She tries to impersonate different characters. She is sympathetic and affectionate, but also selfish and disrespectful. She is also precocious. Parents have humored her. Ought to be thrown with girls of her own age. The father was 33, and the mother 35, when she was born. They had been married 12 years. They are still living, but the father is subject to very severe attacks of rheumatism. The temperament of the mother is nervous, that of the father bilious. They live on a farm. The mother has two brothers and two sisters; the father one sister and seven brothers, all of whom have fairly good health.

7. F., 19. American. Nervous. General health is good, but she is subject to a kind of "fits." There have been no other children. School attendance is regular and began at 9. Her success in work was good. She got along with other children well, and in play her favorite pastime was to seat herself on a box and imagine herself a queen. At home she could usually be found sewing for her dolls or playing

with them. Her best trait was her good temper; her worst, lying and stealing. Precocity was marked in action and words. There was a slight turn in the left eye which was very noticeable at times. At home she had her own way and was consequently frequently in need of restraint at school. The mother's age at her birth was 20. She had been married over a year. The father is dead—died of heart disease. He had one brother, while the mother had two sisters. They seem to have good health.

8. M., 15. American. Phlegmatic. Seems to have good health, yet the sight of blood always causes him to faint. There were never any other children in the family. He commenced going to school at 9, and attended regularly, though he does not now attend. He has little trouble with other children. He seems to be affected mentally and does not progress very well in school work. He is exceptionally dull. He spends considerable time in play, and at home the play most often is imitative of the various trades. The treatment, both at home and at school, seems to have been considerate. His father was 24, and his mother 21, at the time of his birth. They had been married about one year. They are both still living but are separated. The father is delicate, and a drunkard besides. Neither parent has had brothers or sisters.

The above are typical of almost 100 reports. In a general way the health, as indicated in the reports, is most conveniently described by use of the 3 expressions, "good," "fairly good," and "bad." 162 belong to the first class, 98 to the second, and 96 to the last. That is, 96 have bad health, and 98 others do not have good health. The disorders of health most often mentioned are: lung trouble in ten instances, heart trouble in 5, St. Vitus Dance in 5, exaggerated cases of nervousness in 10, "very delicate" in 30, and paralysis in 1, while chronic susceptibility of an unusual kind to headaches, throat troubles, nose bleed, colds, indigestion, catarrh, eye troubles, convulsions, etc., is very frequently mentioned.

Still other evidences of impaired health are added under the head of "physical defects." Ten are deformed. Some of the deformities are: club-foot, weak legs, hunch back, spinal curvature, cross eyes, etc. Fifteen have very weak eyes, 4 are deaf in one or both ears, 3 blind in one eye, 5 have grave disorders of vocal organs, 8 are birthmarked, one is hydrocephalus, and one a paralytic. Others are "hair-lipped," flat-footed," "pigeon-toed," have one side undeveloped, etc. A total of 48 have physical defects of one kind or another.

A great variety of terms were used in describing the temperaments, but it is sufficient to say that it is described as "nervous" in 133 out 258 cases, or something over half of the number for whom the temperament is indicated. No other expression descriptive of temperament was used more than 42 times.

In 80 of 249 families, for which the information is available, there have been at least 120 other children. The largest number of any one case being 5, all of whom were still-born. In

42 of these 80 families the surviving child was not the first-born. Of the entire 120, 9 were still-born, 20 lived only a few hours or days, 46 others less than a year, 6 not more than a year, 3 not more than 2 years, 3 less than four years, 2 less than 5 years, 2 less than 6 years, 6 less than 7 years, 2 less than 9, and one each, 10, 12, and 15 years. It could hardly be claimed that so large a proportion of the children of families in general die at corresponding ages, and that the early deaths of so many of these children do not signify degenerative tendencies of a very pronounced sort. Besides it must be remembered that the 120 deaths represent only those that were *known* to the individuals making the reports. That there were others cannot be doubted. Yet with this number the proportion of all the children born to the 249 families, who died at the above mentioned ages, is 31%, or about 320 per thousand for the years 1–9 inclusive. Nevertheless, in the absence of suitable statistical data for comparative purposes, it cannot be positively asserted that the rate is greater than the normal.

Thirty-two of the 242 fathers are dead, as are also 23 of the 248 mothers. The father's health is said to be bad in 58 of 245 reports, and that of the mother so in 100 out of 239. It appears, therefore, that in so far as bad health in either parent is a factor in the limitation of the birth-rate, the mother is of far greater importance than the father. Gross[1] presents statistics showing that women are sterile about eight times as frequently as men.

Thirty-one parents from among those of 249 families had consumption, dying of it in most of the cases. 22 were so weak and delicate that they were called invalids, 18 suffer from nervous prostration, 8 had heart trouble, 5 were insane, while there are many reports of grave female disorders and not a few of paralysis, rheumatism, and cancer. Still there are many other disorders of a serious character, mentioned at least one time each. The frequency with which consumption and cancer are noted seems to harmonize with the observations of many writers on the subject of fecundity, that cancer and tubercular diseases are especially conducive to sterility.

The temperament of parents is described as "nervous" in 134 instances out of 249. 43 is the greatest number described by any other single expression. There are 37 cases, out of a possible 226, in which one of the parents was an only child. 7 of these are among 108 fathers of girls, and 9 among 76 fathers of boys, while 13 belong to 120 mothers of girls and 5 to 76 mothers of boys. The only-child parents of girls are more often mothers than fathers, while the opposite is true for

[1] Duncan: Sterility in Women, p. 3.

those of boys. There are 17 only-child fathers and 20 only-child mothers. Whether this is a larger number than is to be found among parents generally cannot be determined, because there are no satisfactory data on which to base a comparison, but it seems that it must be considerably greater, especially if it be true, as Ansell found, that only one child out of every 78 is an only child.

The average number of brothers and sisters which both the 209 fathers and 226 mothers had is three and one-fifth. Adding one to this, we have four and one-fifth as the average number of children for these families, or nearly two less than the average which Ansell found for 1,767 families. The average number of brothers and sisters of 108 fathers of girls, is three and two-fifths, and of 120 mothers of girls, is three and one-sixth, while that of 76 fathers of boys is two and six-sevenths, and of 81 mothers of boys is three and one-third. Thus the mothers of girls come from smaller families than do the fathers, and, on the other hand, the fathers of boys come from smaller families than do the mothers.

The health record of the brothers and sisters of the parents, though not indicated in a very considerable number of the reports, shows 30 consumptives, 5 insane, 4 cancerous, many cases of heart trouble, invalids, nervous and mental wrecks, and numerous early deaths, in not a few instances nearly the entire family of children dying in infancy. Here, also, though suitable data for a comparative estimate is wanting, it is difficult to avoid the inference that the health is inferior to that of people generally.

The average age of fathers at the time of birth of 149 girls is thirty-two and two-fifths years; of mothers of 157 girls it is twenty-six and one-fifth, the two showing an average disparity of about six years. The average age of fathers at time of birth of 86 boys is twenty-eight; of mothers of the same number of boys it is twenty-four and two-thirds, the average difference here being three and one-third years. The average age of fathers at the time of birth of 235 of both sexes is 30.5 years, and that of mothers of 243 of both sexes 25.5 years, the average disparity being 5 years. It is perhaps rather significant that the mean age of parents at time of birth of the boys—twenty-eight for fathers and twenty-four and two-thirds for mothers—is very noticeably lower than that of parents at time of birth of the girls, which is thirty-two and two-fifteenths for fathers and twenty-six and one-fifth for mothers. Does it not mean that the children born in the later stages of relative sterility are more likely to be girls than are those born in its earlier stages?

In 218 marriages the mean length of time that had elapsed

between marriage of parents and birth of the first child is approximately 3 and five-tenths years. For 29 of these, the time between marriage and birth was 1 year, for 54 it was 2 years, for 39 it was 3, for 14 it was 4, for 17 it was 5, for 5 it was 6, for 10 it was 7, for 2 it was 8, for 3 it was 9, for 5 it was 10, for 2 it was 11, for 6 it was 12, for 1 it was 13, and for 2 it was 14.[1] Ansell found in 6,035 marriages that the first birth was within 1 year after marriage, in 3,159 cases, within 2 years in 2,163, 3 years in 421, 4 in 137, 5 in 69, 6 in 26, 7 in 21, 8 in 11, 9 in 7, 11 in 5, 12 in 4, 13 in 13, and 14 in 2. Let these numbers be compared with those above given for the 218 marriages, and the extent of the variation from the normal time that elapses between marriage and birth is made apparent. For 106 or nearly half of the 218, this time is 3 years or more, while at the corresponding time for Ansell's 6,035 marriages, only about one-twenty-first part had not resulted in children. That is only 1 in 21 of the 6,035 couples had their first child after 3 years, only 1 in 39 after 4 years, etc. Duncan, commenting on the table, says that parents who have been married 16 months and are still childless, are exhibiting signs of relative sterility, and also that after the fourth year has been entered upon without children, there is a presumption of persistent sterility. With this in mind, it is well to remember that the average length of time after marriage at which 190 first children were born is over 3 years.

There are a number of very early marriages, one with the mother at 11, and several as early as 15, being reported. Likewise there are quite a number of marriages coming near the end of the reproductive period of one or both parents. If it be true, as is claimed, that the age in women best suited for reproduction is somewhere between 24 and 35, and in men between 30 and 40, it is but natural to infer that children born to parents of other ages will have poorer health as a rule, an inference which ought certainly to be employed in accounting for the bad health of some of the children under consideration. It seems that the strain of too early child-bearing often exhausts the girl-mother's stock of vitality without producing a healthy child and results in early loss of fecundity. Although child-bearing near the end of the reproductive period may not be so dangerous to the mother's health it seems to be quite as unfortunate for the child. Thus 12 of the 32 youngest children, their average age being 11, have bad health. Two of them have convulsions, 4 are weak and delicate, 2 have lung trouble, and another has kidney and eye trouble.[2] Mitchell found

[1] Duncan: Sterility in Women, p. 19.
[2] Duncan: Sterility in Women, p. 62.

among 433 idiots that 138 were first born, and 89 last born.[1] Duncan is inclined to think that the only child, especially if born near the end of the period of fecundity, is more likely to be a girl, and when so, represents the last effort of the stock to perpetuate itself. The greater average age of parents of girls, already stated, seems to accord with his view. In the same connection he refers to Galton's observation of 100 English heiresses, one-fifth of whom had no male children at all, a third but one child, and three-fifths not over 2 children.

The habits of the parents are said to be bad in 40 instances. There are 20 drunkards, and many drinkers, several of whom are mothers. 5 fathers are excessive smokers. The work of 5 mothers seems to be unfavorable to child-bearing, and 5 others are immoral. Over-fondness for society and late hours are mentioned 8 times, as are also divorces. The occupations are named in 143 of 241 families, as in-door, and in the main are sedentary. For the remaining 98 families they are out-door. People of the middle class predominate.

In Relation to School.

The following condensed reports give a very good idea of the school life.

9. F., 10. American. Nervous. Has good health, but the parents thought her sickly and were continually giving her medicine. She is the last born of four children, 3 of whom died in infancy. Her school attendance commenced at four but was very irregular till she was ten. If she disliked the school she was allowed to stay at home for awhile and then try another. She gets along very well with other children and also in school work. Not much time is spent in play, as most of it is taken up by music. When alone her favorite amusement is with her dolls. Unselfishness and affection are the best traits, while self will and a bad temper are the worst ones. Precocity is pronounced, and she is always ready with an answer. She has been allowed to do about as she pleased at home and has also been favored at school. The father was 27, and the mother 25, at her birth. They had been married 4 years. The father, who was a consumptive at the time of his marriage, died when she was small. He had 2 sisters and the mother 1. They have good health.

10. M., 14. American. Very nervous. Not healthy. Had asthma till 12, but is better now. He is the second born of 3 children, 1 of whom was dead at birth. The other lived three years. Commenced going to school at 7, but has not attended regularly. He does not do well in his work nor get along well with his playmates. Much time is spent in plays, which are usually those that boys most often enjoy. He is generous, and at the same time deceitful. The treatment has been rather severe. The father was 35, and the mother 32, at the time of his birth. They had been married 3 years. Both are still living. The mother does not have good health, and is club-footed. The father has good health, but is near-sighted. He is an excessive smoker. The mother's character is not good. She has 2 sisters, and he has several half brother and sisters. These all seem to be in good health.

[1] Ibid: pp. 66, 67, 68, 69.

11. M., 23. American. Equable. Has very good health now, but when about 15 was afflicted with St. Vitus Dance. Has had no brothers or sisters, He attends school regularly, having entered at 7. He did excellent school work, but is indifferent toward other children. Instead of playing he would sit in the Navy Yard and examine machinery. Seems to have no bad traits. Has been indulged both at home and at school. He has been kept too much under the influence of his mother and is very effeminate. At the time of his birth the father was 27 and the mother 20. They had good health, but the father, who is a drummer, is intemperate. The mother had two brothers and two sisters, the father two sisters. These have good health.

12. M., 7½. American. Irritable. Is not a very healthy child, but this is probably due to his not being allowed to play out in the open air as much as other children. He is the only child his parents have had. Until this fall he was taught at home by his mother, but now attends the graded school. His attendance is regular. The other children delight in teasing him and it is with the girls he gets along best. He is very slow in his school work. His favorite games are those that can be carried on in doors, for which the *real* boys have called him "the girl boy" He is not talkative, but is sly and willing to blame others for his misdoings. Is also selfish and wants his own way in playing. He is not very bright, and one cannot help noticing the dreamy expression of his face. His home treatment has made a baby of him, while the impartiality of school life does not please him. The trouble rests with his parents. The father was 43, and the mother 41, when he was born. The former has one brother and one sister, the latter 3 brothers and one sister. These seem to be in good health. The father is deaf.

13. M., 10. American. Nervous. Has a bad throat and is quite delicate. He is large for his age. He began going to school shortly before 6, and attends regularly when his health permits. If the other children do not yield him his own way he will not play. He is quite bright in his studies but has to be encouraged very often. Active plays, and those in which he can win, suit him best. He has many moods. Sometimes he is pleasant, but more often very disagreeable. He is deceitful and has a bad temper. He is quite precocious. The vocal organs are defective and he stammers in his speech so that it is difficult to understand him. It would be well if he had more playmates and were compelled to share with them. The ages of his parents at the time of his birth were 37 and 39. They had been married 12 years. They are in good health. The mother had 1 sister and 6 brothers.

Sixteen of 272 who are of school age, do not attend school, while 74 of those who do attend are very irregular. Many are allowed to remain at home whenever they choose, others are kept at home whenever the weather is in the least threatening, and still others are allowed to attend, now this school, and now that, as fancy may suggest. Quite a number have tutors at home, and a still larger number go to private schools. Very often they do not begin going to school until several years after the usual age for beginning. 2 began at 3 years of age, 7 at 4, 36 at 5, 78 at 6, 81 at 7, 24 at 8, 8 at 9, 4 at 10, 2 at 11, and 1 each at 13 and 14. The average age of entering school for the first time is $7\frac{1}{7}$ years. Bearing in mind that kindergarten attendance has been called school

attendance also, it is apparent that these children enter school a year and a half or two years later than is usual with children generally. This is doubtless due in part to their poorer health, but in the main, to the unwillingness of parents to part with their company so early. Perhaps, also, the children are not so anxious to begin as those having older brothers and sisters, but it would seem that the only child would be more anxious than others to start to school, because of the promise of increased companionship. This state of things probably arises in part from their greater timidity in making the transition from home to school life. Another phase of this is taken up in the consideration of their social life.

Play and Social Life.

The reports given under the preceding topic are more or less typical here. The following ones, however, illustrate in a more specific way the character of the means employed to realize the social longings.

14. F., 8. American. "Self reliant, but especially sensitive to rebuke. Well developed physically, and without any defect except weak eyes. She had been accustomed to playing alone or with older persons. One morning, about two months after she had entered the kindergarten, the children were taking their seats as usual at the conclusion of the preliminary exercises. M— had taken pains to reserve a chair by her side. On noticing the vacant chair, I told J— to sit by M—. Several of the children said, 'But M— will not let any one sit there. She says it is for her friend.' After a moment's thought I recalled that she had greeted me that morning with, 'Miss —, I have a little friend with me!' Seeing no child, I had supposed the mother, who very often spent half the morning in the kindergarten, would bring the little friend later. I also remembered that she had a vacant chair by her during the story in the circle. I called her to me and asked her to tell me what she meant. She said I had told them they might bring their little friends to school and that she had brought hers. I told her I did not see him and asked where he was. He was in the dressing room, she replied. We went out to bring him in. On the way out she talked all the time, explaining that it was a little boy friend with whom she played at home. On reaching the dressing room she ran to the other end of the room, pretended to take hold of a child's hand, who was a little younger than herself, and led him to me. I pretended to shake hands and asked his name. It was J—. We took off his wraps. We then led him into the school room, M— holding one hand and I the other. She pulled out the reserved chair and seated the imaginary J—. M—'s manner was very matter-of-fact. While she was seating her little friend I told the others that M— had brought a little play child, a little make-believe boy, to spend the day with us, that he was not even a doll dressed as a little boy, and that we should try to see what a happy time we could make them have. Some of the faces expressed disapproval, others of them looked at her as if there were something uncanny about her, while others started to make fun of her. They were easily checked, and so the imaginary J— spent the day. He was given the same material to work with, M— doing his work as well as her own. He played the games with

us, M— insisting that the children take his hands in the game. She pretended to show him how to hop like the birds, etc. She shared her lunch with him and, when ready to go home, put his wraps on. Before she started I called her in, telling her at the same time, to leave J— in the dressing room. Taking her on my lap I asked her if they had had a happy day. She replied, with a bright face, that they had. After telling her I was glad they had, I said, 'but, M—, J— is not a *real* boy, is he? 'No,' she replied, 'but I play with him at home.' I then tried to persuade her that she had to do so much for him that she could not give any time to her *real* friends, who were sorry, and asked her if it would not be better to leave J— at home. She replied, 'Yes.' Her parents, soon afterwards, told me that she had several imaginary friends, but two special ones, a little girl and the little boy, J—. She spent so much time with them that they were uneasy and had sent her to the kindergarten with the hope of having her forget them. They said she usually announced the fact when she wished to take them out with her, but that on the occasion above alluded to she had failed to do so. Her happiest hours were spent in this way. She continued to play with these imaginary companions at home, but never again, in the four years that I had her, did she refer to J—. She was always ready to 'make up' a story about the house she had built, etc, etc. She was especially good at illustrating stories that had been told her, on the blackboard.

"She has a good healthy disposition in most respects, but is mean and little about some things. She will share her lunch with others very grudgingly, and hold on to old things long after they are of no value. Her grandmother gave her, on her sixth birthday, a 'companion,' containing pencils, paper, etc. She had been using an old and worthless one which I had supposed she would throw into the trash basket, but she gave it to A—. Soon after I heard her tell A— that she would have to return it, as she had only pretended to give it to her. I tried, by means of persuasion and explanation, to have M— understand that it was now no longer hers, but observed at the close of the day that she took the companion home with her. She said it was one she had had for a long time and that she could not part with it. (Such conduct was often excused by means of sentiment.) Another time a penny belonging to one of the children was left on the table. Some of the children saw M— take it. She denied having done so, but a prolonged conversation with her caused her to find the penny. She said she thought it was hers. I never regarded her as untruthful or untrustworthy. She was certainly fussy and over particular."

15. M., 7. American. Nervous. Has bronchial trouble. Has never had brothers or sisters. He entered school at 5, and has attended regularly. He is backward with other children, but succeeds fairly well in work. He spends much time in play and, at school, plays much the same games as other children. He is selfish, yet obedient. He is also precocious. The home treatment has been good. The mother was 20, and the father 22, at his birth. They had been married a year. Both have good health. The father has three sisters and one brother, the mother six sisters.

16. F., 19. American. Sympathetic temperament. Health usually very good. I had an older sister who lived a little more than two years. Entered school when about 8, and have attended regularly. I never got along very well with a *number* of girls, but generally wanted just one friend to be with most of the time, and even yet I would rather go with just the one. Liked to go to school, and succeeded very well, but found it hard to settle down to work. Never cared for such play-

things as other children had. The games at home were usually quiet, such as matching cards, jacks, etc. I was patient but lacked self-reliance, for others had usually done for me what I did not care to undertake for myself. I was humored by my mother, with whom I spent a great deal of my time. At my birth she was 25 and my father 24. They had been married 4 years. My father is a farmer, and does not have good health. He has no brothers or sisters, but my mother has four brothers, who enjoy good health.

17. F., 11. American-Jew. Nervous. Has had no brothers or sisters. Health good. She attends a boarding school and is regular in her attendance, which was begun at 7. She does not get along well with other children, and often will not play unless she can have her own way. She plays a great deal. At home she places books on chairs as pupils and, with another book in her hand, she addresses the chairs as her pupils. She also likes to play theater, pretending that she is a ballet girl. Her home surroundings lead to this. She is kind and sympathetic, but also contrary, vain, and precocious. The loss of sight in one eye above mentioned, and a broken arm, were caused at birth. She has been surrounded generally by adults who have petted and spoiled her. The parents were each about 25 at her birth, and had been married about 2 years. They have good health. Both are excitable and nervous. The mother keeps a boarding house. Her father is an accountant.

18. M., 18. American. Irritable. Has good health. He entered school at 7 and attends regularly. With other children he is always striving for the mastery, and consequently does not get along with them very well. In work he is slow. He spends much time in play. He enjoys playing with pets. He tells many improbable stories. One of these was about a lion and a tiger fighting in his back yard. He saw them from his window, put on his hat, and went out and killed the lion, which was about to conquer. He is affectionate, but very selfish also. Has too much home indulgence. The father's age at his birth was 38, that of the mother 30. They had been married 3 years. The father has good health, the mother is excitable. Three sisters of the father died in infancy and only one of his two brothers is now living. The mother had three brothers and two sisters. This boy has an only child-cousin.

134, out of a total of 269, get along badly with others, 54 only fairly well, while only 81 seem to be normal in their social relations. When they disagree with other children it is usually because of a desire to rule. If they fail in this desire they are likely to refuse to associate with the children who cause the failure, and in a measure succeed in the wish to have their way, either by choosing younger companions whom they can control, or older ones who are willing to grant indulgence. Many do not care for a large number of companions, and select one or two for friends with whom they prefer to spend most of their time. They do not, in numerous instances, enjoy crowds, and keep aloof from games, very often remaining in doors to talk with the teacher. A marked preference for company of older people is manifest, even when every opportunity for younger company is present. But this is no doubt due less to a dislike of suitable companionship than to their inability to understand, and be understood by, children of near their own

ages. It is plainly evident that they have as deep longings for society as the children of other families, but their isolated home life has failed to give them equal skill and ability in social matters. They do not so well understand how to make approaches, to concede this thing and that, and are not likely to so readily fall into companionable relationship with those who are unaccustomed to yield less than half to others. The greater intimacy with parents unmistakably predisposes to premature development of the social instinct.

They are very often imposed upon, notwithstanding the willingness which so large a number of them display to practice impositions on others, but they are less proficient in such contention. To be sure there are many who appear perfectly normal in these respects, but they have played more with children, of their own ages, have had sensible treatment at home, and enjoy more vigorous health. Quite a number seem to begin to overcome these limitations during the age of puberty.

That they are not less anxious for companionship than other children, is shown by an examination of the nature of the home amusements, especially those which involve imaginary companions, of which there are about 50 well defined cases mentioned.[1]

Miss Vostrovsky found in the study of a number of such cases as these, that a dislike of solitude and a longing for more appreciative and sympathetic relations with others, were the chief factors in their development. The ones reported in the present study certainly harmonize with that notion of their origin. Thus two little girls take their imaginary brothers to school, hang the wraps in the cloak room, reserve chairs for them at the table, and divide the "goodies" at lunch time. Again, one plays on an imaginary instrument, another calls on imaginary friends, another has imaginary friends call on her, carrying on long conversations with them in which she does all the talking. Others have imaginary tea parties, schools, church, millinery stores, etc. Still others assume different characters, as mother, teacher, Queen Victoria, etc. The imagination is often helped out by dressing up in suggestive costumes. Likewise the doll seems to have an unusually prominent place, while the household pets are drawn into service to supply the place of *real* children, some having imaginary animals to help out in the scheme.

The evidence contained in many of the reports warrants the assumption that, as a class, only children have greater power of imagery, and that stories can be pictured out by them with more of ease and accuracy than by other children. (Case 74 is a good illustration of this.) The inference just made, how-

[1] A Study of Imaginary Companions: C. Vostrovsky, Education, XV, p. 383.

ever, does not harmonize with that of Professor Baldwin,[1] who says: "And while he" (the only child) "becomes proficient in some lines of instruction, he fails in imagination, in brilliancy of fancy." It does coincide with the views expressed by Sully,[2] who states that his studies for students lead him to a conclusion directly opposite to that arrived at by Baldwin.

Out of 244, there are 138 who spend the usual amount of time in play at school, 44 who give less time to it, and 62 who play little or none. Many of the 62 stand around and watch others play, showing little inclination to join in active games. They prefer the quieter forms of amusement, and often like to be alone. If left to their own choice they are pretty sure to be found in the school room with their teachers at intermissions. A number of the boys prefer to play with the girls, at strictly girls' games, such as keeping house with dolls, and generally come to be called "girl-boys." As a rule they amuse themselves in a quieter way and appear to take less pleasure in noisy games of any sort. Very often it is mentioned that they give a considerable amount of time to reading, and that they are disposed to resent the intrusion of others upon their more quiet and pretty well fixed forms of behavior. Those who join in active games at school fall back into quieter ways at home.

Mental and Moral Peculiarities.

The best traits, in the order of frequency mentioned, are: affection, honesty, obedience and generosity. The worst traits in similar order are: selfishness, "spoiled," temper, jealousy, untruthfulness, stubbornness, and haughtiness. The most prominent characteristics, regardless of their worth, are: precocity, named in 134 instances among 238 children, selfishness in 94, imaginativeness in 48, affection in 40, jealousy in 25, mental defects in 23, temper in 23, self-will in 20, and vanity in 20.

As has already been stated, the only boy, only girl, and youngest child offer many points of resemblance to the only child, especially in the traits that are of post-natal origin. The same tendency to unwarranted indulgence and concession on the part of parents is manifested and with similar results. Also the youngest appears to resemble the only child in that the influences which antedate birth, operate to an unusual degree in giving a constitution less healthy and robust than that of the average child. Kolrausche,[3] in a study of "Jugendspiele und Einzelsöhne" in "Kaiser Wilhelm gymnasium" at Hanover,

[1] Mental Development, p. 358.
[2] Studies in Childhood, p. 39.
[3] E. Kolrausche. Zeitschrift Für Schule Gesundheitsplege, Vol. IV, p. 178.

says that the only sons enter into movement plays less regularly, if at all, than do the other boys. These plays, especially foot ball, among pupils from Unter Tertia to Prima, have been under the observation of teachers for years. Of the 70 with brothers, 47% entered into the games regularly, 16% irregularly, and 37% exceptionally, or not at all. Of the 68 only sons, 13% took part regularly, 12% irregularly, and 75% not at all. These latter showed a greater number of bad athletes. He concludes, therefore, that the home relations for only sons are not good, and that the "Jugendspiele" should be made compulsory.

The answers to inquiries about subjects of study yield little, if any, suggestion. 117 are poorest in arithmetic, and 78 are best in the same subject. No other subject is mentioned more than 41 times. Whether this is unusual or not, cannot be said.

Precocity.

The observation of precocity in such children is so frequent as to warrant special consideration. The following reports are more or less typical.

19. M., 16. American. Nervous. He is naturally delicate and is kept up only by the most constant attention. He has never had brothers or sisters. He entered school at six and has been regular in his attendance. In his earlier school days he did not get along well with the other children, especially with the boys, who did not like to play with him, because, as they said, he had to tell his mother everything. In school work he succeeded especially well. He would join in most of the games at school, but usually withdrew when any roughness made its appearance. This may have been due to his physical condition, as he has poor eyes and spinal curvature. The home treatment was of a nature to develop a marked religious tendency. This has grown so that his mother goes to him as she would to an older person to discuss religious topics in which she is interested, and she finds that he talks remarkably well about such things. His teachers always treated him with a great deal of respect. He never gave them cause to treat him otherwise, for both his conduct and work were far above the average. The father was 30, and the mother 25, at his birth. They had been married 4 years. Both have delicate health. The father has two sisters and two brothers. These latter do not have good health.

20. F., 9. American. Nervous. Is troubled with heart disease. Has never had brothers or sisters. She entered school when 7 and has attended regularly, succeeding very well in the work. She is precocious. Her ways are those of older people, and she is in a class of pupils at school who are from two to five years older than she. Her parents are quite strict with her and treat her as if she were grown. The father was 31, and the mother 32, at her birth. They had been married three years. Their habits are good. The father is a lime agent. The mother was a teacher. She has no brothers or sisters. The father had two brothers and two sisters.

21. F., 11. American. Nervous. She is thought to be quite delicate and great care is taken of her, she is kept in a warm room and seldom allowed to go out. She is often sick and under the doctor's care. She has never had brothers or sisters. She has a governess and has never attended school. She has few companions of her own age,

and associates mainly with grown up people. She talks and acts in a grown-up manner. When she plays with other children she gets along with them reasonably well, but she does not care to run or take part in active sports. She likes her lessons and is quick to learn. She is affectionate and obedient, and does everything she can to please her parents. Her parents give her a great deal of attention and gratify her every wish. They are always planning something for her and do not like to have her away from them. It is my impression that she should associate more with persons of her own age. Her parents were about 30 years of age at the time of her birth. The father is a lawyer, and the family occupies a good social position.

22. M., 22. American. Nervous. Has never been robust. He entered school at 8, but did not attend regularly for several years, because his mother was always unduly anxious about him whenever he was out of her sight. As he became older and, as she thought, better able to take care of himself, his attendance grew to be quite regular. He enjoyed the society of other boys, but his mother determined the amount of time he should devote to play, and as a result he played less than he desired. Fortunately for him he was fonder of reading than of anything else, and when other boys were out on the street he was with his books. He made remarkable progress in his studies, and even his games were those that had some connection with literature, history, etc. His best trait is his fondness for his mother. During the last two years, while away from home, he has written her an average of three letters a week. He has no bad traits. He was always coddled at home, and as his early school work was with an aunt for a teacher, it is safe to say he was petted in school. To me it has always appeared that he should have had more of the free, outdoor life of other boys, yet he has turned out to be a good boy and others have not. The father was 25, and the mother 23, at his birth. They had been married a year. The father died when the boy was 9 years old. The mother is exceedingly nervous. She had one brother. The father had four sisters and two brothers. The boy's submission to maternal whims has made him the subject of many jokes, but he does not mind them.

Little comment on these cases is needed, especially as the subject will be taken up again under the head of Pedagogical Suggestions. It may be stated, however, that, whether or not there seems to be a predisposing physical basis for precocity, there is abundant evidence of the very great influence of environment in producing it.

Treatment.

Excessive indulgence is practiced at home in 191 of 266 instances. In 50 instances the treatment is said to be sensible, in 18 stern, and in 7 bad generally. "Never allowed to do anything because thought so much of," "had his own way in everything," "humored," "petted," "spoiled," "indulged," "coddled," etc., are some of the expressions frequently employed to describe the parental treatment.

Summary of Points.

These only children are unmistakably below the average in health and vitality.

Mental and physical defects of a grave character are much more common among them than among children generally.

The average length of time between marriages of the parents and births of the children is so great as to suggest a pronounced degree of relative sterility in the stock. This is much more strongly shown in the mothers than in the fathers.

The average age of the parents at the birth of girls is considerably greater than it is at birth of boys.

A greater proportion of the girls than of the boys have only-child mothers, while on the other hand a greater proportion of the boys than of the girls have only-child fathers.

Nervous disorders seem to be unusually common in the families.

These children appear to enter school later than other children, and to be less regular in their attendance.

Their success in school work is below the average.

Not so large a proportion, as of other children, enter the public school.

They do not join in games so readily or often as do other children of corresponding ages. They prefer quieter forms of amusement.

Many of them have imaginary companions.

Very many manifest a decided preference for older associates, while not a few select younger companions, and often from the other sex.

A large number of them do not have as good command of themselves socially as does the average child. Their social relations are therefore more frequently characterized by friction.

Peculiarities in these children seem to be more pronounced than in others.

Precocity appears to be the most prominent trait.

Selfishness is the most frequently named of the worst traits, while affection is most often named among the best traits.

As a rule the home treatment had been that of unthinking indulgence, which generally develops in a child the habit of expecting concessions on all sides, and corresponding unwillingness on his own part to make them to others. A right appreciation of the conditions with which the child must be concerned outside the family life, requires that he be given ample opportunity for companionship with children of corresponding ages.

Pedagogical Suggestions.

Very often they have been forced into an early adultage from having been made the constant companions of older persons, especially the mothers, who very frequently make them the sharers of their trials and responsibilities. Thus it happens

that the spectacle of a mere child, bowed down by the weight of big problems, is presented, and at a time in his life when it would be most natural to expect him to be deeply interested in a foot-race or a knife-trade. Not a few parents have laid the burden of their troubles on defenceless children, making them father-confessors and both spiritual and temporal advisers. It is little wonder, then, that such children are unable to understand and appreciate children of their own ages. It may be gratifying to some parents to have a child of theirs, while yet in knee breeches or short dresses, spoken of as a "deep thinker," a "perfect gentleman," "a perfect lady," etc., but it is pleasure of a cheap sort and paid for at the price of stunted and abnormal growth.

Their more affectionate dispositions, together with a strong preference for associations with their elders, no doubt has much to do in securing a greater degree of indulgence from teachers. Yet their frequent inability to unite readily with other children in sports, and to adjust themselves to the more stringent requirements of school life generally, leads to not a little trouble, and occasionally results in expulsion or voluntary withdrawal for the purpose of entering another school with the hope that more agreeable surroundings may be found.

The peculiarity of their ways often subjects them to unusual and unpleasant attention from other children. Neither understands the other, but the misunderstanding results more seriously for the only child. Frequently their more effeminate ways cause them, in the language of some of the persons reporting, to be "made fun of," "called a girl boy," "used as a foot-ball," etc. Still the larger number gradually adjust themselves to the more complex relations of school life, which leaves us to conclude that the cause of their backward social development is to be found chiefly in their home surroundings, though suggestions of a physical predisposition are not wanting. The healthy and robust have a greater capacity for social development and will do more to realize it.

The persons making the reports almost unanimously agree in holding that there should be far less indulgence, that a more uniformly firm and natural method of control should be followed, that age considerations should have more influence ; that such children should not be so constantly with parents and other elderly persons, but more with children of their own ages and thus learn how to share with, and yield somewhat to, others ; that the undue anxiety and concentrated love of parents should yield to a more intelligent appreciation of the wants of the child, who is in much greater need of discriminating attention than of the lavish bestowal of misguided affection.

The constant interference and watchfulness of over anxious

parents denies to the child the range and freedom of action and experience which his nature calls for at the time, and which he must have if he is to develop self-control and self-direction. The basal and fundamental instincts of his nature, physically, mentally, and morally, are ignored only with evil results. He must be given some opportunity to choose for himself, to experiment.

Says one writer :[1] "It will be noticed that all creatures which have large families, whether beasts or birds, have less trouble in rearing them than those which have only one or two young. Little pigs are weeks ahead of young calves, and the young partridge, with its dozen brothers and sisters, is far more teachable than the young eagle." Another claims that the young Newfoundland dogs that grow up with children for playmates are far more intelligent and teachable than those put into the hands of trainers from the start, and there are none who have not observed what wonderful teachers of one another children are.

[1] Animal Kindergartens: Spectator, Nov. 7, 1896, p. 642.

SOME PRACTICAL ASPECTS OF INTEREST.

By JOSEPH S. TAYLOR, PD. D.,
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The first systematic attempt to study children's interests seems to have been made by Alfred Binet in 1890. His method was to question one child at a time as to certain common objects, such as knife, bread, doll, etc. From the data thus gathered he drew these conclusions:

1. That children are impressed to a very small extent by the visible aspect of things.
2. That their greatest interest is in the *use* of things.
3. That their ideas possess only slight abstract characteristics.

Prof. Barnes, acting upon the hint thus furnished by Binet, made a similar experiment in 1892. The children were asked to tell on paper, without knowing what use was to be made of their answers, what the following are: knife, bread, doll, water, arm-chair, hat, garden, mamma, potatoes, bottle, flower, snail, mouth, lamp, earth-worm, shoes, finger, clock, house, wolf, omnibus, piece of sugar, thread, horse, table, bird, dog, carriage, pencil, balloon, village, box, handkerchief.[1]

This is the same list of words that Binet had employed. Barnes tested over two thousand children, and reached the following conclusions:

1. That at the age of seven, "use" is the thing of transcendent importance in the thoughts of children.
2. At the age of eleven "use" is still supreme, but "larger term" and "substance" are assuming importance. By "larger term" is meant referring an object to its genus; as, "a clock is a time-piece." By substance is meant what an object is made of; as, "a clock is made of wood."
3. At fifteen "larger term" is more important than "use;" "substance" and "structure" are getting more and more prominent.

At this point Dr. Shaw, Dean of the New York School of Pedagogy, took up the study, repeating what Barnes and Binet had done, but adding several new features.[2]

He had a larger number of objects, and classified his answers

[1] Studies in Education, p. 203. Stanford University.
[2] Child Study Monthly, August, 1896.

under a larger number of heads. As a result of these variations, and also by reason of a different classification, by which answers appear under "action" that were classified under "use" by Barnes, Dr. Shaw is inclined to revise some of the opinions expressed by his two predecessors.

Another valuable investigation of interest from the practical side is that of Mary Sheldon Barnes on "The Development of the Historical Sense in Children."[1] One of her tests was to read a story without a date, a place, a name, or a moral, for the purpose of finding out what questions children would spontaneously ask. The other test consisted of two parts: 1. Children were asked to write down something that happened before they were born, and tell how they knew it was true 2. They were asked to explain how they knew that George Washington ever lived. Among Mrs. Barnes's conclusions are these:

1. History is a proper subject for children from the age of 7.
2. Time is badly understood until 12 or 13, hence it should be visualized by means of charts.
3. Children should not be specially trained or urged in inference until 12 or 13.
4. History should first interest itself with the biography of heroic characters.
5. These biographies should be of men who fight, and hunt, and build, rather than of those who write, or think, or legislate.

About two years ago it occurred to me that some criterion of the value of educational work might be found by ascertaining the attitude of children toward the different subjects of the curriculum. If it be granted that a suitable subject properly taught interests a child, it follows that where interest is wanting, the fault must lie either in the course of study, or in the teaching, or in both.

Having obtained permission from the Principal of one of the Boys' Departments of a New York Public School, I requested the teacher of every class to submit to the pupils these four questions:

1. What subject or subjects did you particularly like in your last class?
2. Why did you like them?
3. What subject or subjects did you particularly dislike?
4. Why?

The study was made in September, just after the long vacation. It was assumed that any like or dislike that was remembered after ten weeks must be a reality and not a mere passing whim. If such questions were put in the middle of a term the answers would have far less value than under the conditions

[1] Studies in Education, p, 43.

adopted, because a child is prone to *like* the subject in which for the time being he gets high marks. By summoning his judgment to a period long past, only those experiences which, on the whole, impressed him most will be taken into account.

The number of pupils examined was about a thousand, but for various reasons only 756 papers were available for study. The results were tabulated by ages, grades, subjects, and classes. In Table No. 1 are shown the results by age and grade.

In September, 1897, two more studies were undertaken along the same lines, one of a New York Mixed School, and another of the Public Schools of Winona, Minn.[1]

In Tables 2, 3, 4, and 5 are found the results of these studies, aggregating, with the former study, returns from 2,137 pupils.

The columns of each of the tables have been averaged, and these averages may be taken to measure the interest of children in their school studies. No children below the third grade were examined. For the ages of 8 and 17 only a few returns were received, consequently the figures found in these columns have but little value. If we accept the Herbartian contention that interest is a test of good teaching, then, in a good school, the pupils ought to become more and more deeply interested as they pass from age to age and grade to grade. Table No. 1 shows that this is definitely the case in the Boys' School of New York, where the averages range in regular gradation from 20 to 37 for ages, and from 18 to 45 for grades. In the Mixed School (No. 4), there is a noted decline of the interest curve, beginning at the age of 13 for both boys and girls. This seems to be due to the teaching in the fifth grade, where there is a remarkable falling off in interest. In the preceding grade 60 per cent. of the girls liked arithmetic, here only 20; 40 per cent. were fond of geography, 44 per cent. of history; now only 21 per cent. care for geography, and 23 per cent. for history.

In the Winona Table (No. 2) there is also a similar dip at 13, and one covering the fifth and sixth grades of girls; the boys, on the contrary, are quite as regular as those of the New York Boys' School. So also in Table No. 4, the boys show less variation than the girls. The principals of these schools may be able to explain these facts. Are they phenomena of sex, or adolescence, or simply results of the teaching process?

In New York the girls are more interested than the boys; in Winona the case is reversed.

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[1] Acknowledgment is hereby made of valuable services rendered by the following persons: Prof. E. A. Kirkpatrick secured the Winona returns through the courtesy of Mr. J. A. Tormey, Supt. of the Winona Schools, and my wife tabulated the same. Dr. E. R. Birkins, Principal of Public School No. 10, New York City, secured and tabulated all the returns in Tables 4 and 5.)

No. 1. LIKES AND DISLIKES. NEW YORK BOYS' SCHOOL. (PERCENTAGES.)

	LIKES.																	DISLIKES.															
	AGE.										GRADE.						Total.	AGE.										GRADE.						Total.
	8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8	
No. Examined.	2	16	72	140	175	179	114	45	9	4	75	320	198	94	32	37	756	2	16	72	140	175	179	114	45	9	4	75	320	198	94	32	37	756
Music,	0	0	1	3	1	1	0	0	0	0	0	2	0	6	7	0	1	0	0	5	0	0	10	0	2	0	0	0	7	3	23	3	0	6
Writing,	0	19	5	6	9	13	16	42	33	3	22	6	10	24	50	14	12	0	6	9	5	6	9	0	0	0	0	12	10	2	4	0	6	7
Arithmetic,	0	32	27	29	28	36	54	44	56	0	44	29	29	56	78	49	36	0	87	36	23	14	21	0	4	0	0	25	22	15	6	6	0	18
Drawing,	0	6	40	19	18	29	37	44	22	100	8	24	24	23	59	48	25	0	12	11	12	9	6	0	9	11	0	14	8	7	8	9	16	9
Nature Study,	0	0	3	6	5	11	11	10	56	0	0	0	13	19	75	72	9	0	0	4	2	0	3	4	2	0	0	0	2	2	7	9	0	2
Reading,	0	50	27	21	34	23	31	31	33	0	47	29	25	24	22	30	28	0	25	5	4	4	0	0	2	0	0	2	6	4	0	0	4	4
Spelling,	0	19	42	22	27	34	46	40	44	0	27	30	35	31	69	68	31	100	31	15	5	9	0	0	11	0	0	24	10	4	3	0	8	8
Gram. or Lang.,	0	3	2	4	7	10	16	31	28	0	0	5	18	51	56	46	10	0	13	3	0	7	6	5	12	16	0	2	10	15	10	14	26	7
Geography,	0	50	26	33	26	29	28	40	33	3	32	19	23	35	9	59	27	0	12	12	12	14	21	14	11	0	50	12	20	10	6	9	8	10
History,	50	19	42	45	38	37	53	58	67	0	0	44	41	56	65	68	43	0	0	3	0	2	0	4	9	11	25	3	0	2	12	12	10	3
Average,	5	20	21	19	19	22	29	34	37	10	18	19	22	32	42	45	22	5	19	10	6	7	8	3	6	4	7	9	9	6	8	6	8	7

In this and subsequent tables, the figures at the top represent the ages of the pupils and the grades from which they had been promoted ten weeks before. The next row of figures shows the number of pupils examined in each age and grade. All other figures are percentages, showing what proportion of pupils like and dislike the several subjects of study.

No. 2. LIKES. WINONA.

	GIRLS.																	BOYS.														
	AGE.										GRADE.						Total Girls.	AGE.									GRADE.					Total Boys.	T'l Boys & Girls.
	8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		
No. Examined.	0	7	30	48	50	84	48	37	9	4	0	49	88	57	33	90	317	0	4	15	25	40	55	37	29	3	2	0	31	67	40	26	46	210	527
Music,	0	0	3	6	6	12	10	11	0	0	0	4	6	14	9	8	8	0	0	6	4	0	0	0	6	0	0	0	0	3	0	4	2	2	5
Writing,	0	0	6	6	6	1	8	25	0	25	0	12	3	5	9	9	7	0	25	6	0	2	2	6	6	0	50	0	10	4	0	4	4	4	6
Arithmetic,	0	14	33	40	50	41	45	46	33	50	0	37	37	33	54	48	41	0	0	33	12	50	62	35	50	66	50	0	26	48	50	49	43	43	42
Drawing,	0	0	6	4	8	2	10	5	0	0	0	6	3	10	9	6	6	0	0	0	4	2	7	8	3	0	0	0	0	4	5	4	9	4	5
Nature Study,	0	0	0	0	0	4	8	8	11	0	0	0	1	2	6	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Reading,	0	86	43	45	30	21	25	27	11	0	0	45	33	33	24	18	30	0	0	33	20	15	27	25	18	0	0	0	13	30	22	20	17	22	26
Spelling,	0	28	6	23	16	8	20	27	22	0	0	20	10	23	18	16	17	0	0	0	8	12	14	19	24	66	50	0	6	12	12	16	26	15	16
Gram. or Lang.,	0	0	10	14	20	18	31	46	44	0	0	8	11	17	57	27	22	0	25	0	4	10	9	11	6	33	50	0	10	6	0	12	19	9	17
Geography,	0	0	33	25	30	15	35	25	33	25	0	26	18	30	45	21	25	0	50	33	56	45	23	30	29	0	50	0	33	36	42	31	26	34	29
History,	0	0	7	21	40	20	35	23	22	50	0	0	13	40	36	34	24	0	0	20	16	20	31	49	62	66	50	0	0	9	42	84	56	34	28
Average,	0	13	15	18	20	14	23	24	18	15	0	16	14	21	27	20	18	0	10	13	12	16	17	18	20	23	30	0	10	15	17	22	20	16	17

No. 3. DISLIKES. WINONA.

	GIRLS.																BOYS.															
	AGE.										GRADE.						Total Girls.	AGE.										GRADE.						Total Boys.	T'l Boys & Girls.
	8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8	
No. Examined.	0	7	30	48	50	84	48	37	9	4	0	49	88	57	33	90	317	0	4	15	25	40	55	37	29	3	2	0	31	67	40	26	46	210	527
Music,	0	14	14	10	2	1	2	3	0	0	0	8	8	0	0	1	4	0	25	6	8	7	10	0	6	0	50	0	6	12	2	4	9	8	6
Writing,	0	0	10	2	2	5	2	3	0	0	0	8	5	0	3	0	3	0	25	6	4	5	5	3	0	0	0	0	3	10	0	0	2	4	3
Arithmetic,	0	14	14	10	4	5	10	11	0	0	0	12	11	0	6	9	8	0	50	14	30	2	2	25	20	0	0	0	26	12	5	12	15	13	10
Drawing,	0	14	16	14	8	2	8	5	0	25	0	25	7	3	12	1	8	0	0	14	4	7	7	3	3	0	0	0	13	6	5	0	4	6	7
Nature Study,	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reading,	0	0	13	12	8	3	8	8	0	0	0	12	11	4	14	3	7	0	25	6	8	10	5	6	6	30	0	0	20	10	0	0	6	8	8
Spelling,	0	14	12	20	13	15	6	0	0	50	0	6	20	2	20	3	11	0	50	53	20	30	21	8	12	0	0	0	50	32	5	0	16	22	15
Gram. or Lang.,	0	14	20	6	26	11	12	14	0	0	0	26	20	2	10	10	13	0	0	6	16	10	13	25	33	0	0	0	20	15	2	23	24	16	15
Geography,	0	0	3	20	10	20	8	11	0	0	0	6	22	5	0	14	12	0	0	14	0	10	9	14	6	66	50	0	20	7	0	4	16	9	11
History,	0	0	7	6	2	8	8	30	22	0	0	0	5	4	24	16	9	0	0	0	0	10	4	0	6	33	0	0	3	4	0	8	6	4	7
Average,	0	7	11	10	8	7	6	9	2	7	0	11	11	2	9	6	7	0	18	12	9	9	8	8	9	13	10	0	16	10	2	5	10	9	8

No. 4. LIKES. NEW YORK MIXED SCHOOL.

	GIRLS.																	BOYS.															
	AGE.										GRADE.						Total Girls.	AGE.										GRADE.						Total Boys.	T'tl Boys & Girls.
	8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		
No. Examined.	1	10	29	58	74	107	100	49	27	4	58	125	104	109	63	0	459	2	9	28	61	79	90	70	46	8	2	52	103	108	98	34	0	395	854
Music,	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	4	0	0	0	0
Writing,*																																			
Arithmetic,	100	40	48	43	61	39	56	35	37	0	52	60	20	55	44	0	43	0	11	36	48	44	50	43	41	62	50	29	38	23	47	68	0	45	45
Drawing,	100	30	10	3	11	8	9	25	4	25	21	10	3	6	3	0	10	0	0	18	12	12	7	3	2	25	0	13	8	10	4	10	0	8	9
Nature Study,	0	0	3	5	4	6	8	4	7	0	0	4	6	7	10	0	5	0	0	4	2	1	2	4	9	25	0	0	2	4	3	15	0	4	5
Reading,	100	30	14	10	5	7	5	10	4	0	12	9	11	5	2	0	8	0	0	18	18	9	4	4	0	0	0	21	11	5	3	0	0	8	8
Spelling,	100	20	24	43	22	26	23	24	18	0	34	42	18	15	17	0	26	100	33	36	23	20	16	14	11	0	0	33	22	34	4	15	0	19	23
Gram. or Lang.,	0	10	0	3	12	13	9	37	19	100	2	6	7	28	41	0	16	0	0	0	3	4	20	15	25	13	0	2	8	7	31	76	0	18	17
Geography,	0	0	17	26	42	25	15	10	18	0	12	40	21	19	5	0	23	50	22	43	43	41	13	35	9	13	0	38	41	29	10	32	0	29	26
History,	0	20	20	41	46	26	26	22	4	25	0	44	23	25	16	0	26	0	44	48	46	71	38	51	37	62	0	46	64	55	39	18	0	49	38
Average,	44	15	15	19	23	16	14	19	12	17	15	24	12	18	15	0	17	17	12	23	22	23	17	19	15	21	6	18	22	17	17	26	0	20	19

* Not reported.

No. 5. DISLIKES. NEW YORK MIXED SCHOOL.

	GIRLS.																	BOYS.														
	AGE.										GRADE.						Total Girls.	AGE.									GRADE.						Total Boys.	T'l Boys & Girls.
	8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		8	9	10	11	12	13	14	15	16	17	3	4	5	6	7	8		
No. Examined.	1	10	29	58	74	107	100	49	27	4	58	125	104	109	63	0	459	2	9	28	61	79	90	70	46	8	2	52	103	108	98	34	0	395	854
Music,	0	0	0	2	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3	0	1	0	0	0	0	0	2	1	0	0	0	0	0	0
Writing,*																																			
Arithmetic,	0	40	10	26	13	7	6	8	15	0	21	9	13	6	14	0	12	100	33	39	21	25	9	18	11	25	0	33	22	16	6	12	0	19	15
Drawing,	0	10	7	7	2	4	2	2	0	0	7	5	4	1	0	0	3	0	0	11	10	3	7	3	0	0	0	12	3	6	0	9	0	5	4
Nature Study,	0	0	17	22	19	38	26	20	15	0	9	20	46	28	6	0	25	0	0	18	13	19	13	20	13	13	50	4	26	10	16	15	0	15	20
Reading,	0	30	10	8	4	3	1	2	0	0	12	7	2	0	2	0	4	0	11	0	2	1	0	1	0	0	0	6	1	0	0	0	0	1	3
Spelling,	0	0	10	8	9	3	4	8	0	0	9	9	7	0	5	0	6	0	11	4	5	9	7	0	0	0	0	10	8	5	0	0	0	5	5
Gram. or Lang.,	0	0	14	14	9	15	13	20	4	50	7	13	13	13	21	0	13	50	0	18	21	32	27	33	30	50	0	6	19	40	35	33	0	27	20
Geography,	100	20	28	29	22	27	10	26	22	25	33	27	14	15	21	0	21	50	11	7	3	11	8	7	4	0	0	6	12	8	15	0	0	7	15
History,	100	10	17	12	5	9	18	12	11	25	14	13	13	9	14	0	12	0	0	4	18	8	11	6	15	13	0	15	9	6	14	6	0	10	11
Average,	22	12	13	14	9	12	9	11	6	11	12	12	13	8	10	0	11	22	7	12	10	12	9	10	8	11	6	9	11	5	7	8	0	10	10

* Not reported.

Arithmetic.

In all schools arithmetic is a subject of trauscendent interest, the lowest average being 36, the highest 45. Boys are a little more interested in it than girls. The dislike of the subject is almost equally prominent. So much time is devoted to it in our programmes that it affects children very profoundly. More than half the pupils name the subject as either a like or dislike. The average of the likes is 42; of the dislikes, 14. In New York more boys have a distaste for it than girls. In Winona it is the other way.

History.

Next in popularity is history. The studies of Barnes and Shaw have shown that children like "use" and "action;" hence we can see why history should be a favorite study, inasmuch as it deals with movement in the form of discovery, exploration, and battle. The average of all schools is 38 per cent. for the likes, and 7 for the dislikes.

Geography.

Geography is next in importance. The average likes range from 23 to 29, the dislikes from 11 to 21. The unpopularity of the subject among the girls in Table 5 suggests a defect of method in some of the grades of that school, especially the third, fourth, and seventh.

Spelling.

What is there in the spelling of the English languge to commend it to the heart of a child? Twenty-two per cent. of the two thousand pupils declare that they are particularly fond of it. But nearly one-tenth of all profess an aversion to it. Our New York methods seem to succeed better than the Winona methods.

Reading.

Reading enlists the interest of 19 per cent., and 5 per cent. dislike it.

Grammar.

Grammar and Language studies are far from successful in any school, if interest is a criterion. The best work seems to be done in the New York Mixed and the Winona Schools, the average of likes for both being 17 per cent. Boys are much less interested than girls, the numbers being respectively 13 and 19. In New York Mixed School 27 per cent. of the boys dislike grammar. Is it possible to make this study interesting to the average child? If so, we need to examine our methods

and find out why about one-seventh of the pupils like it, one-seventh dislike it, and the rest are indifferent.

Drawing.

What is the matter with drawing? In one school 9 per cent. (No. 1), in another 8 per cent. dislike it. I charge the dislikes in New York to the old course of study, which has recently been replaced by a better one. For Winona I cannot speak; but it seems strange that in the fourth grade 25 per cent. of the girls and 26 per cent. of the boys should dislike a subject which is supposed to be one of the spontaneous modes of childish expression.

Writing.

Writing has little attraction for children. One school made no report on the subject; the average of the rest is 8 for the likes and 5 for the dislikes.

Music.

If a foreigner looked at the returns for music he might come to the conclusion that the soul of the American has no sense of harmony. "Heavenly harmony," and only 2 per cent. like it, while 4 per cent. hate it, and the rest are indifferent! A part of this indifference is accounted for by the fact that only a small portion of time is devoted to it (in New York, 10 minutes a day), but even with this allowance, there is grave suspicion that music in the public schools is largely a failure.

Nature Study.

I have left nature study for the last, because the returns seem to me to show a prodigious waste of school energy.[1] Col. Parker insists that nature studies constitute the spontaneous interests of childhood, and should therefore be the "central subjects" of the course of study, all the rest being merely "modes of attention," "modes of judgment," or "modes of expression." If half of Col. Parker's claim is true, how have we sinned against childhood, when only 4 per cent. of our pupils have any interest left in nature, and 7 per cent. profess disgust! In Winona there is utter indifference, less than two per cent. having professed interest, while the rest do not consider it of sufficient importance even to dislike it. In New York the case is a little better, but far from satisfactory. In

[1] A friend who was kind enough to read the manuscript of this article suggests that it might be well to make some allowance for the fact that failiug to mention such subjects as nature study and music, may be due not to indifference, but to the pupils not regarding them as subjects of study owing to the absence of text books.

Mr. Lancaster's study of adolescence[1] we find that out of the 1,000 eminent men and women studied, 640 were ardent lovers of nature, while only 290 of the same individuals liked any one science. What more eloquent arraignment of our present methods of science teaching could be imagined than this contrast between the love of nature on the one hand and the distaste for science on the other.

Five or six years ago Supt. Seaver made a report on the teaching of elementary science in Boston, in which he said that nature study was gravely deficient, both in method and in results. "Notwithstanding the work of Miss Crocker, the Normal School, and the teachers' school of science," he says, "it remains a fact that the sciences — particularly the natural history sciences — have very little lodgment in our current school work. And this statement must be made more than a generation after the great Agassiz began his work of promoting an interest in the study of natural history among all people, all schools, and all teachers."[2]

In 1893, Prof. Dolbear, of Tufts College, read a paper in which he said: "The results of the teaching of science in schools of all kinds have been a great disappointment to the friends and advocates of science teaching."

The reason for this disappointment is found in the fact that we have hitherto confused two things wholly different. We have mistaken systematic science for nature study.

No mistake has been more common than the attempt to teach to small children the results of science. This is a psychological error which assumes that what was a normal experience of Newton, Gray, or Darwin, may become an experience of the little child. Who does not know that zoölogy, for instance, is reduced to a skeleton, then presented in abstract and logical form to children as a product of science? Yet neither the logic nor the abstraction is possible to the young learner. The protests of Dr. Hall and Dr. Hodge,[3] as well as of Prof. Dewey,[4] are certainly well taken, and these returns show how utterly futile it is to try to interest children by giving them the abstract, logical, completed summaries of adult science.

Reasons.[5]

The reasons which the children gave have not been tabulated, but below will be found some typical answers.

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[1] Pedagogical Seminary, V: 1 — p. 61.

[2] Ed. Review, Oct., '91.

[3] Summer School of Clark University, 1897.

[4] "Psychological Aspect of the School Curriculum," Ed. Review, April, 1897.

[5] For this selection of reasons, I am indebted to Dr. E. R. Birkins, of New York.

9 YEARS OF AGE.

Likes.

G. "I like history because it is very interesting."
G. "I liked to hear about the great men like Columbus."
G. "Arithmetic, because it teaches me how to add and subtract."
B. "It was about different country and ours" (History).
B. "History. It has storys about wars."
B. "History. It is the interesting early life of our country."
B. "History and Geography because they are the most interesting of any studies."

Dislikes.

G. "Arithmetic—because it is tiresome."
G. "Arithmetic—I thought it was hard."
B. "Geography—because it was too easy."
B. "Geography—because it was too hard."
G. "Geography—because I do not like to look up the map."
B. "Arithmetic, Spelling and Writing. Because they are the most tiresome studies."

11. YEARS OF AGE.

Likes.

G. "Arithmetic and Drawing—because they are the best, and the hardest."
B. "Arithmetic. Because it requires a good deal of thinking."
B. "Arithmetic History and Geography—because they will help me in later life."
G. "Spelling, History and Arithmetic—because they were always explained so that we could understand them."
G. "Grammar as it was like a puzzle."
G. "Reading. Because it has many tales in it."
G. "History and Geography—because it is nice to know about the world and its people."
B. "History. Because it tells of all the great men of the world."
G. "Spelling. Because it is very important."
B. "Geography. Because it is something interesting."
G. "Arithmetic, Spelling, Reading. I liked these studies because they were teaching me to have a good education."
B. "Arithmetic. Because I had to think."

Dislikes.

G. "Copy-Book Writing. Because I can't write good."
G. "Grammar. Because I could never get it right and I used to try very hard."
B. "History and Physiology. Because I did n't study it enough."
B. "Drawing. Because I did not have a taste for it."
B. "Physiology. Because it talks to much about skeletons."
B. "I dislike no study."
G. "Music. I did not learn it in the primary and it was hard for me."
G. "Physiology, as it gave me fancies."
B. "I don't like spelling very much."
G. "Geography—because I cant understand it and never will."
G. "I never knew what to write in composition and writing got me tired."
B. "I don't like Suffixes because you get mixed up."
G. "Prefixes. Because they would catch me."

13 YEARS OF AGE.

Likes.

G. "Geography—because it tells about the world."
G. "Grammar—because it teaches us how to talk correctly."
G. "Arithmetic—because it helps us to get a position."
G. "Arithmetic, Reading—because I was best in them."
B. "Arithmetic. Because it is used most in business."
B. "Reading. Because I learn something about great men."
B. "Geography and History. Because they are more interesting than others."
B. "History. Because I liked to hear about wars and adventures."

Dislikes.

G. "Physiology. Because I found it not easy to learn."
G. "Arithmetic. Because it is very difficult to learn."
G. "Dictation—because I never got it all right."
G. "Geography—because I could n't remember it."
B. "Prefixes and Suffixes. Because they were to dry."
B. "Physiology—because it was not interesting."
B. "Geography—because it was hard."

15 YEARS OF AGE.

Likes.

G. "Geography, History. Because they teach us something about the country."
B. "If I should go into a wholesale house I would need decimals very much."
G. "Arithmetic—because I like to puzzle it out."
G. "Grammar—because it gives us power to speak English properly."
B. "History—because I am fond of reading about battles and famous men who fought in them."
B. "Grammar—because it teaches us to speak correctly.
B. "Arithmetic. Because it is a useful study."
B. "Physiology—you can help injured people or drowned people."
B. "Arithmetic—because there is so much reasoning to be done."
G. "Arithmetic—as it was explained very distinctly."
G. "Physics—because it is so interesting."

Dislikes.

G. "I did not care for arithmetic as much as my other studies just because I did not always know how to do it."
G. "None—because they are all of use to us."
G. "Composition—because I was not a good composer."
B. "German—because it is so difficult to get the articles in the right place."
B. "I don't dislike any but the one I like least is German."
B. "Physiology. Because business people don't like it."
B. "Synonyms—because I could not very well understand them then."
G. "Arithmetic—because I was very poor in this study."
B. "Grammar—because I did not see what use it would be in business."

17 YEARS OF AGE.

Likes.

G. "Arithmetic—because it is most important to know how to figure."

G. "Grammar—because it is very interesting to know how our language is formed, and it is also very necessary."
G. "Composition—because I am fond of trying to compose."
B. "Arithmetic—because it is most beneficial."
B. "Geography—because it is a very interesting and useful study."

Dislikes.

G. "Arithmetic—because it is very complex and difficult to understand."
G. "Geography—because there is a great deal to remember."

A Few Novel Reasons.[1]

B. "I like Geography because I entend to become a navagitor."
B. "I have a strong aversion to werbs."
G. "I don't like writing because it make my hand taller." (An Italian girl.)
B. "I did not like Drawing besause it is to dirty using rubbers." (10 years old.)
B. "I liked them all but I liked History picterly." (10 years old).
B. "Arithmetic—because it is the most emported thing that we must learn."
G. "Roots—because it puzzles me."
G. "We had to hard Drawing we had to make free hand circles and free hand squeers."
B. "Writing—because it makes you tired." (9 years old.)

Conclusions.

1. Such a study as this is useful to a principal because it enables him to locate poor teaching. The Teachers' Conference is to remedy defects. I believe this is an infallible method of discovering in what subjects and grades the defects exist. If he finds that 52 per cent. of the third grade like arithmetic, 60 per cent. of the fourth grade, and only 20 per cent. of the fifth, there is pretty conclusive evidence that something is wrong in the fifth grade. And such a discovery may be made in a class whose teacher is in every other respect successful, and has an excellent record.

2. It is useful to a principal, also, because it furnishes a criterion for rating the teacher. I believe that interest, rather than a per cent., is the true test of a teacher's success. The present method of estimating a teacher's success is by the number of facts her pupils remember. If, instead of this, the teachers were tested by the touchstone of interest, what a revolution it would work on the pedagogical balance-sheets of the superintendent's office. Many a teacher who counts himself rich on the basis of past methods, would suddenly find himself bankrupt. And many another, who has perhaps been regarded as a pauper, would find himself the possessor of a fortune. *Some of the most successful crammers are murderers of interest.*

3. If such studies are useful to the principal, they are no less valuable to the teacher. When the study was made in the

[1] A nine year old boy liked his former teacher because "she was not craws."

Boys' School, 76 per cent. of those who studied geometry expressed a dislike for it. I called the teacher's attention to the fact, and he was greatly surprised. On reflection, it occurred to him that the reason must be that he undertook to do more than the class were able to stand. He had been told that he must cover a certain number of pages in a year, and he proceeded to lay out his work accordingly. His pupils happened to possess very meagre average capacity, and so they failed to understand their geometry. There was no time for apperception. In consequence of this study, the teacher reversed his methods and determined that he would cover the ground only as fast as his pupils could do it thoroughly. Three months later he polled the same class again, whereupon 75 per cent. declared that they especially liked geometry.

4. It is known that the majority of pupils in the public schools never reach the higher grades. Very many leave permanently at the end of the third year. Prof. C. M. Woodward has ascertained that in St. Louis the average age of pupils at the time of withdrawal from school is thirteen years. In New York it is not uncommon to see in a school four or five crowded fourth grade classes and one seventh grade. Some of these early withdrawals are made necessary by the poverty of parents, especially of widows. Others are due to the cupidity of parents, who value above a good education the few paltry dollars their children can earn. But is it not also a fact that a large number of children leave school voluntarily because they are not interested in their studies? All truants certainly belong to this class. The hardest part of every teacher's work is the management of the apathetic, uninterested pupils. These are the ones who make most of the trouble in discipline; who tax the teacher's time and patience; who fall behind and injure the record of the class when examinations and promotions come round.

I am one of those who believe that there is no such thing as a "lazy" child. Many are ill, and suffer from a lassitude which is pathological. But the majority of the so-called "lazy" and "indifferent" are simply children who are not interested in the course of study.

Studies like the present will go far to show not only who the uninterested children are, but the reasons they give for their likes and dislikes often suggest a remedy by revealing the obstacles in the child's way.

5. Finally, it is a test of the success or failure in the management of a school or a system. Better than the testimony of the teachers and principals; more certain than any percentages of achievement; more reliable than show-work put up in the class-room or sent to an exhibition, is this silent but eloquent testimony of the children as to the success or failure of methods and courses of study.

THE CHILD AND THE WEATHER.

By Edwin G. Dexter, Greeley, Col.

In the following paper, which I hope will ultimately appear in a more elaborated form, I have attempted to show, by means of empirical data, the possible effects of abnormal meteorological conditions upon mental states. Every scientific problem partakes somewhat of the nature of a verification of popular opinion on a given subject, and this one is no exception to the rule. "I feel all wrought up, and fit for nothing, this kind of weather," is a statement we are all familiar with during the dry, windy spells to which our Colorado climate occasionally treats us, and we teachers are sure that during certain phases of the weather, our pupils (of course it cannot be we ourselves) are too exasperating for endurance, while a change in the meteorological conditions brings with it a smoothness and a tranquility of spirits which forms a marked contrast. That the weather has a pronounced effect upon physiological conditions few afflicted with rheumatism or diseases of its nature would for an instant doubt. Indeed, the truth is so patent that we need not give it an instant's discussion. That its effects are so marked upon mental states might be questioned, but that it has an effect of considerable importance is recognized, even by the matter-of-fact business men of our large mercantile concerns. For instance, in the Bank of England, certain sets of books, an error in which would be cumulative and produce disastrous results further on, are locked up, and the clerks set at tasks less intricate and important in character, during London fog, and on days when the weather is particularly depressing in its nature. Experience has taught those in charge that the per cent. of error increases manifold during such climatic conditions, and that it is money in pocket to conform to them. The same necessity for cessation of certain lines of work during bad "spells of weather," is recognized by the larger banking institutions in New York and the other eastern cities, and a rotation of work in conformity to them is rigidly observed. It has been the universal reply, too, by the superintendents of prisons and asylums for the insane, to whom I have appealed for their opinion upon the subject, that the persons in their charge varied so markedly with the meteorological conditions, that no man who had ever had their experience could for a moment doubt that the relation between weather and emotional states was any other than cause

and effect. When asked, however, what definite conditions of the weather tended to be most productive of emotional abnormalities, no satisfactory answer could be made, and we were as much at sea as ever.

A principal of one of the large boarding-schools for boys, a Quaker school in eastern New York, made some very interesting statements corroborative of the general belief I have already stated. They were given me by a former Colorado educator, who was for some years an instructor in the school just mentioned. He said the principal would occasionally come to him, with the assurance of one who knows, and caution him to look out for the boys, and particularly certain boys whom he called by name, saying, "There is likely to be trouble to-day." This had continued for some time, and every warning had proved timely, when the instructor's curiosity with regard to the principal's seeming prescience led him to appeal to his superior for the secret. The answer was that a careful observation for long years had proven to him that certain definite conditions of the weather, as revealed to him by the barometer of a gouty foot, brought with them, or were followed by, a tendency to unruliness on the part of the boys. He also stated that his belief that the weather produced these marked effects upon his pupils, had been intensified of late, since he had been suffering from a severe attack of insomnia, during which he had spent many nights walking the long corridors of the dormitories. Here, on those nights which his previous experience would leave him to believe would be followed by emotional abnormalities, he would hear the boys, from whom he was separated only by badly fitting doors with open transoms above them, tossing upon their beds in imperfect sleep, or moaning and talking in a manner quite unusual to them on nights when the weather was different.

But, you say, that accounts for their unruliness on the following day :— They did n't sleep well !

Yes; but why did n't they sleep well?

To be sure, an unusually indigestible supper, or even the worry over some unfinished task, for which he would be called to account on the morrow, might produce just this effect, but it could hardly be supposed that these facts would universally coincide with abnormal conditions of the weather, and it was the indubitable opinion of the good pedagogue in question, that it was to the latter cause, and not at all to the former, that the sleeplessness and petulance of his pupils was due.

It was the seeming certainty that such is the case, as shown by the incident just related, and observations of a somewhat similar nature which all of us have made, together with the fact that we have no exact knowledge of the definite meteoro-

logical conditions productive of such results, that led me to undertake the problem outlined in this paper.

Its solution is three-fold in its nature :

First. A determination of the exact weather conditions for days on which misdemeanors requiring corporal punishment have occurred in public schools of Denver since September, 1883, and a comparison of those weather conditions with the normal.

Second. A similar comparison for those days on which murders, suicides or attempts to suicide have taken place in the same city, within the same time.

Third. An attempt to study the same conditions in the same manner, with regard to their effects upon horses, as shown by the frequency of runaways.

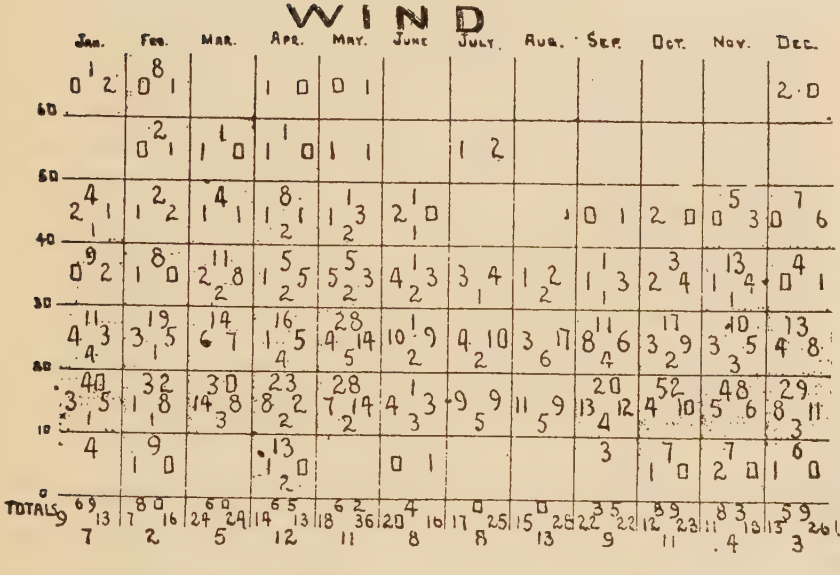
We fully recognize that all these effects might have been due, and perhaps were, in every case *directly*, to some other cause than the weather, but the question still confronts us, would those direct causes, for instance, the tendency to be insolent, on the part of the boy — the loss of position by the would-be suicide, or the sudden fright by the horse, produce the tabulated result had not the meteorological conditions brought about a nervous tension, tending to make these results more probable? Light can only be thrown upon this problem by generalizations made from a large number of observations. In the problem with the school children, which is the only one treated in this discussion, two facts tend to impair the validity of the data.

First. In the notes sent Supt. Gove (the only records available), the principals never failed to mention the exact date on which the punishment was administered, but in some cases, that of the misdemeanor was left uncertain.

Second. It is quite possible that the misconduct was, in many cases, only "the straw which broke the camel's back," and no worse than some preceding it which had been left unpunished. We can, however, suppose that some misdemeanor had been the immediate cause of the punishment recorded and tabulated, disregarding the possibility of others.

The records showed 606 cases of corporal punishment in the public schools of Denver, between Sept., 1883, and June, 1897. (See upper number marked "grand total" on plate No. 1.) Of these: 69 were in January, 80 in February, 60 in March, 65 in April, 62 in May, 4 in June, 35 in September, 89 in October, 83 in November, and 59 in December. (See upper numbers marked "total," at bottom of same plate.) Since the months of February, October and November show a somewhat equal distribution, and all the other months of the school year are broken into by vacations, except May, the data fail to show that the time of year has any marked effect upon the tendency

PLATE I.



to misdemeanor. The smaller number in May, may be due to a general laxing of school discipline toward the end of the school year.

The records showed neither the age nor grade of the offender, and the sex was so universally male, that that item has been disregarded. The character of the offense, too, was so varied that it was not shown in the table.

In tabulation, the dates of misdemeanors were set down chronologically in the left hand columns of sheets, ruled for the max. and min. barometer readings, max. and min. temperature, max. and min. humidity, maximum and total movement of the wind, precipitation, and character of the day. These columns were all filled in at the local office of the United States Weather Bureau, under the direction of its Assistant, Supt. P. H. Brandenburg, whose kindly assistance, as well as that of Misses B. Ida Jones and Helen Adams, teachers in the Denver public schools, I wish here gratefully to acknowledge.

In each of the tables used in illustration of this paper, the number near the tops of the small squares represents the number of misdemeanors in the public schools, the left of the two midway from top to bottom, the murders; the one at the right, suicides or attempts to suicide; the bottom one, cases of recorded horse-runaways in Denver, for the months shown at the

top of the column and meteorological conditions shown at the left.

In the preparation of these tables, profile paper was used, ruled in inches and tenths, and dots were put in for each class of data, to represent graphically the exact reading. Finally the dots were counted for each inch square, and the number set down as shown in the accompanying tables. In photographing the larger charts for these, however, the one-tenth inch squares and the dots, for the most part, failed to show.

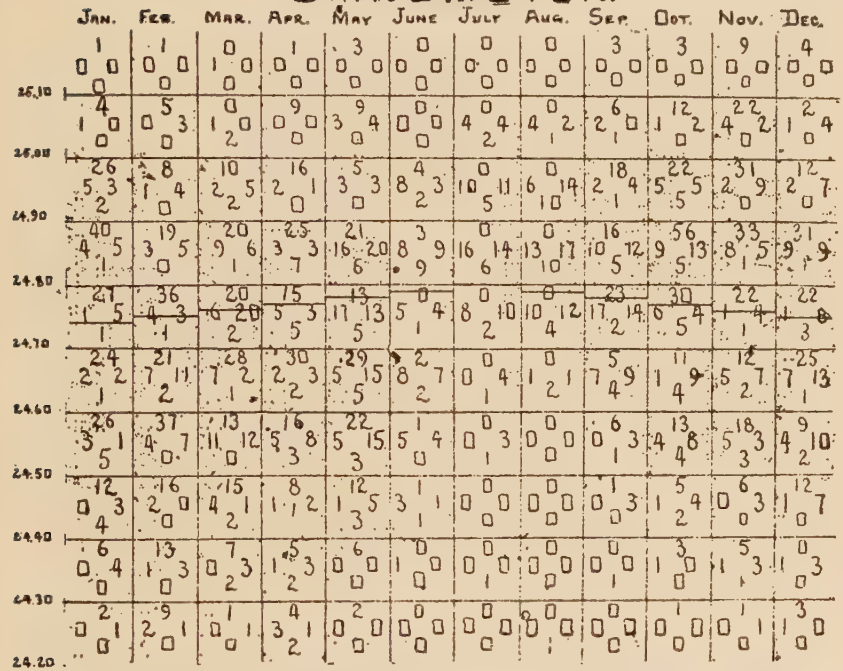
The table marked "wind" shows, at the bottom, the monthly totals for all classes of data, and in the corner, the whole number of observations for each class. Within the squares, the figures show the number of days having tabulated data, on which the wind reached a maximum velocity shown by the numbers at the left. A little addition shows us that the number of days on which this velocity was less than ten miles per hour, was 49; 10 to 20 miles was 302; 20 to 30 miles was 140; 30 to 40 miles was 60; 40 to 50 miles was 32; 50 to 60 miles was 4; more than 60 miles was 9. Since the mean maximum velocity for Denver comes within the decade from 10 to 20, we shall consider any reading within that decade, as normal. We find that just about one-half of the tabulations come within those limits (normal), leaving the other half distributed over the other velocities which might well be considered abnormal. But the records at the Weather Bureau show that 61% of the maximum readings are within our prescribed normal limit, giving us, from this generalization, a proportion of 6.5 in favor of abnormal anaemometrical conditions. Of these abnormalities, excessive velocity seems most disastrous, since the proportion of cases above the normal is to those below, as 5 to 1

Beside considering the maximum velocity of the wind, its total movement was also tabulated, although it does not show upon the plate. By "total movement" is meant the entire number of miles registered by the anaemometer for the day. For Denver, the mean total daily movement for the year is about 156 miles, being a little higher in the spring, and a little lower in the fall.

In tabulating the data, I find that 3 misdemeanors occurred when the movement was above 450 miles; 12 between 400 and 450; 23 between 350 and 400; 34 between 300 and 350; 40 between 250 and 300; 88 between 200 and 250; 79 between 175 and 200; 206 between 125 and 175 (normal); 83 between 100 and 125, and 37 under 100. I have considered daily movements between 125 and 175, normal. That is days which could neither be considered windy nor calm, but with the gentle breeze which is most pleasing. But 206 offences were committed under these conditions (one-third), while the government

reports show that 50.1 of the days fall within them. By this calculation we have a proportion of 5.3 (about) in favor of abnormal anaemometrical readings.

PLATE II.



The tabulation of the barometrical readings is shown in Plate No. 2. The heavy black lines represent the normal barometric curve for Denver for each month. Although this is practically the mean for the maximum and minimum readings, it represents, perhaps, more exactly, the barometric conditions for what we would call "fine weather;" that is for those days which are most exhilarating and freest from depressing conditions. In this, as in the other tables, the numbers at the tops of the squares represent the recorded misdemeanors in the public school for the month shown at the top of the column and the condition at the left. Since in this, as well as in the temperature and humidity tables, both maximum and minimum readings were tabulated without distinction in this summary, two readings for each day are represented, making a

total twice that of the number of misdemeanors. An inspection of the table shows that for days on which either of the readings was between 24.70 and 24.80 (practically normal), there were 200 tabulations, while 1,012 were without these limits. This is, perhaps, limiting the "normal zone" too narrowly. A study of the conditions, however, shows that a maximum reading above 24.90 and a minimum below 21.60, may with certainty be said to be abnormal, since but 32.5 per cent. are outside of those limits. Our table, however, shows 49 per cent. to be outside of them arguing that emotional excesses, as shown by a tendency on the part of the pupil to be unruly, vary with abnormal barometric conditions. We cannot say that we have here, cause and effect, since barometric abnormalities are always the conditions accompanying other peculiar meteorological states, and since it has been impossible to tabulate the data in such a way as to be able to compare all the conditions for a single day, with all those for another day, or with the normal, we can only say that such variations are concomitant.

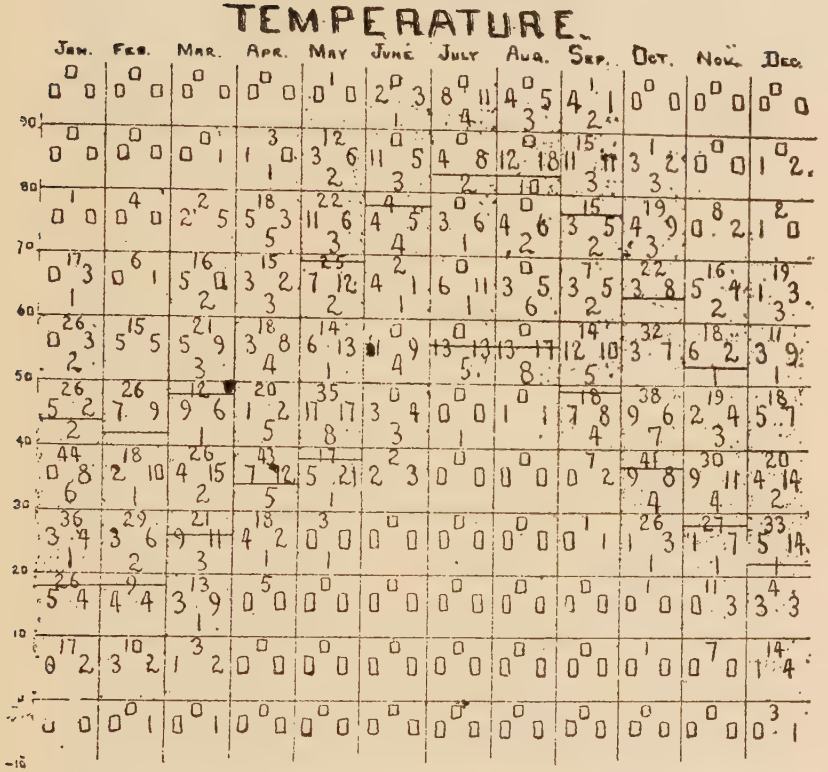
My deductions from this study, in spite of the fact that misdemeanors occurred on 25 per cent. of the days on which the barometer reached its maximum or minimum for the month, while the law of probability would give us but 6 per cent., would be that the direct effects of barometric pressure are the least of any of the conditions studied.

This deduction would be supported by the fact that in coming to Denver from the sea-level (a difference of 5 inches in barometric reading) or even going to the summit of Pike's Peak (a difference of 11 inches), no marked emotional excesses are noticeable.

In the study of the temperature table (Plate 3), it is necessary to bear in mind the fact alluded to in the last discussion — that the numbers (which are arranged similarly) represent maximum and minimum readings indiscriminately. The black lines show the means for both of these readings for each month. That is, for January, the mean maximum for the month was 44 degrees and the minimum 18 degrees Fahrenheit. It is safe to suppose that all the readings below the minimum mean are minimum readings, and all those above the maximum mean, maximum readings, while those between the two means are indiscriminately both. If this be a fair supposition, the figures beyond the means represent misdemeanors, while those between them, for each month, must be modified to put them upon the same basis.

This fact makes it difficult to compare abnormal thermometric conditions with the normal, but we can, with very interesting results, compare the two abnormalities — excessive heat and

PLATE III.



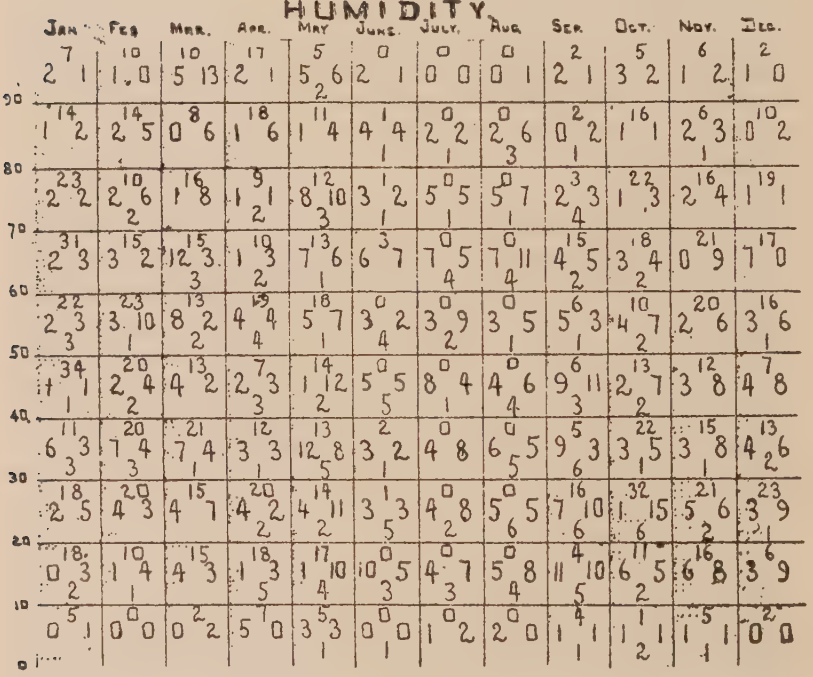
excessive cold — and note their seeming influence upon neurotic states.

Every month, without exception, shows a great preponderance of misdemeanors on days when the heat was abnormal, over days when the cold was unusual, and this is particularly true for the warmer months. For instance: in April, 36 misdemeanors when the heat was abnormal, to 23 for a similar condition of cold; May, 37 to 4; September, 16 to 8. Since school is not in session during the hottest months of the year, this class of data cannot be studied for them, but the record of suicides shows the fatal effects of excessive heat. In July, for instance, 17 suicides during abnormal heat and none during abnormal cold. In August the proportion was 23 to 1.

In the winter time, judging from the notes of the school principals, from which I get my information regarding misdemeanors, the considerable number of punishments recorded for conditions

below the normal mean, were largely due to opportunity, rather than any necessity to work off superfluous energy. Many of the notes mention snow-balling, and other attractive sports of the winter season, as the cause of the youngster's tribulations, and since these could not be considered an element of probability in the warmer months—nor is there perhaps, anything quite so seductive to offset them—their effects may have been considerable upon our tabulation for the winter months.

PLATE IV.



In studying the humidity table (Plate 4), we must also note that the figures in the squares represent the two readings, maximum and minimum, for each day tabulated.

The mean humidity for Denver varies from 45 per cent. in the summer months, to 54 in January and February, though this curve is not shown upon the table. An inspection of the table shows that for each month, almost without exception, the readings for the decade of per cents. including the normal or average is less than for those more abnormal, making this, perhaps, the most interesting and conclusive of any class of data

studied. For example, for April the readings for each decade of per cents., beginning with the upper, are 17-18-9-10-19-7-12 20-18-7. Since for April, 48 per cent. is normal, and the reading for the decade 40-50 is 7, this point is well illustrated. It is not so well shown by some of the months, still with all the same general curve may be observed. When, too, we take into consideration, the fact that, as was the case with the thermometer readings, those nearer the normal represent the less important readings (from our point of view) of days already represented by a more abnormal reading, the effect of excessive moisture, as shown by a great humidity, and excessive dryness, as shown by small humidity, is all the more marked. This may be shown more empirically by comparing percentages. For instance, the percentage of days having tabulated misdemeanors (out of the 606 considered), on which the humidity was between 90-100, was 11 (per cent). The actual percentage of days during the school year, on which that excessive amount is reached, is 3.6 for humidities between 80-90 as shown by our tables, 16 per cent. ; actual, 7.6. Between humidities of 10 and 20, about 16 per cent. shown by our tables to 25 per cent., actual. Between 0 and 10, 5 per cent. to 3 per cent.

We have here, seemingly, evidence that abnormal conditions of moisture, whether great or small, effect mental states, though we are forced to conclude that the direct physiological influence of the two abnormalities differ, and very likely the neurotic states tending to produce irritableness in our children are dissimilar.

The stickiness and unpleasant sensations common to days when the humidity is great, together with the fact that the sensible temperature is greater under such conditions, might give rise to a sensorial irritableness which could not be experienced when those conditions were wanting. It is also just as true that the very reverse of those conditions are accompanied by electrical states, as yet but little studied, which seem to be productive of, or at least accompanied by, neurotic abnormalities which are very pronounced.

In looking over the monthly bulletins at the Weather Bureau, I was much amused at the remarks appended by a very observing voluntary official in one of the mountain towns. One statement, which bears upon the point in question, was as follows : "Humidity for the month very low, which has brought about an electrical condition which has set every one to fussing and fighting." Exactly what this electrical condition so tersely commented upon by the weather observer is, is not known, nor has the Bureau studied it sufficiently to make any reports upon it. It is certain, however, that in Colorado it is present during periods of the lowest humidity, even lower than are ever reached

in the moister regions of the lower altitudes, and an interesting comparison might be made between the readings of this table, and similar data collected in those altitudes.

A tabulation of the days on which the precipitation was one one-hundredth of an inch, or more, shows that 106 misdemeanors, or a little more than 16 per cent., occurred under those conditions.

A comparison with the normal number of rainy days for the months of the school year, which is also 16 per cent., gives us no increased probability of misdemeanors on rainy or snowy days.

Of the 606 days tabulated, 75 were of the denomination classified at the Weather Bureau as "cloudy," 256 "partly cloudy," and 271 "clear," giving percentages of 12.5, 42.6, and 44.9 respectively. Comparing these percentages with 15.5, 43.5, and 42, the normal percentages for the same classes of days, we have little reason to believe that the character of the day has any marked effect.

To summarize in brief the conclusions arrived at in this paper:

First. The time of year seems to have little effect.

Second. Abnormal movement of wind, as shown by maximum velocity, seems to increase misdemeanors 20 per cent. As shown by total movement 66 per cent.

Third. Abnormal barometric pressure, either great or small (or the conditions accompanying such abnormality), seems to increase them 50 per cent.

Fourth. An excessive humidity has the most marked effect. Humidities between 90 and 100 increasing the probability 300 per cent. Between 80 and 90 increasing it 104 per cent.

Fifth. Precipitation seems to have no effect whatever.

Sixth. The character of the day, little or no effect.

We must not, however, consider these factors independently of one another, nor dogmatically conclude that each is of the importance these figures would imply. A much more exhaustive study, from a vastly greater number of observations, would be necessary to arrive at any definite conclusions, and I offer this paper as a mere reconnoitre into what seems to have been hitherto, unexplored territory.

THE INTERESTS OF CHILDREN IN THE READING WORK OF THE ELEMENTARY SCHOOLS.[1]

By CLARK WISSLER, Director Psychological Laboratory, Ohio State University.

Early in October, 1895, the following list of questions was sent out to a number of school superintendents in Indiana, with a request for written answers from the pupils under their charge.[2]

1. Write the subjects of all the lessons that you remember from the Reader you used last year.
2. Which one did you like best? What was it that you liked?
3. If you were taken to a book-store and told that you might select just one book for your own, what would you take?
4. Give your *name, age* and *grade.*

Six of these superintendents had received training in the Departments of Psychology and Pedagogy in the Indiana University, the others were known to the writer personally as men capable of carrying out such directions as were given. The questions were all presented during the same week and all of the pupils in a school wrote their answers at the same hour. The pupils were ignorant of the purpose of the questions, receiving them as an ordinary lesson in composition.

Papers were received from about 2,100 children. From the teachers' reports as to the reading work of the preceding year, irregularities appeared in four different rooms, necessitating the rejection of the papers received from the pupils of the same. There remained in all 1,950 papers, 1,060 from girls and 890 from boys. The following classification presents the gradation by Readers and by the year in the course of study, the number of boys and girls in each Reader, and their ages at the time of writing these papers.

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[1] This study was made while the writer was a student at the Indiana University, under Prof. Wm. L. Bryan, and he wishes to acknowledge his indebtedness to him for directions and assistance in working over the results.

[2] The writer takes pleasure in acknowledging his indebtedness to the following superintendents, without whose co-operation the material for this study could not have been collected: J. F. Haines, Noblesville; T. F. Fitzgibbon, Elwood; D. T. Powers, Paoli; Noble Harter, Brookville; N. C. Johnson, Cambridge City; Lee Ault, Hagerstown; J. R. Sparks, Dublin; J. A. Shafer, Williamsburg.

Reader.	Year in Course of Study.	Girls.	Boys.	Ages.[1]
Second,	2	236	230	8 – 9
Third,	3 and 4	300	243	9 –11
Fourth,	5 and 6	323	268	11–13
Fifth,	7 and 8	201	149	13–15

All the schools of Indiana are required to use the State Series of Readers. This study could not have been made without such uniformity in text and course of study. While all criticisms are made with reference to this Series of Readers, they apply in a general way to all books of this class, because in range of subject matter the Indiana Series is a fair representation of American reading texts.

I.

No. 1. Write the subjects of all the lessons that you remember from the Reader you used last year.

The tabulated results of the first question are presented in diagrams, showing the per cents. of girls and boys remembering the consecutive lessons in each Reader. It was found impossible to make a distinction between the two grades using one Reader because pupils would remember some lessons from the part of the book belonging to the other grade.[2] The Fifth Reader is omitted in this classification because of lack of uniformity in class work.

It will be seen from the diagrams that certain lessons were remembered by a large per cent. of the pupils, others by few or none. In the following will be found a brief characterization of all the lessons remembered by five per cent. or less, of both sexes, together with those remembered by a large per cent.

SECOND READER.

A. Lessons not recalled by any one.

PART I.

(Every lesson recalled).

PART II.

29. "Pretty Is That Pretty Does."—Alice Cary.
A short moral lesson on duplicity.

B. Lessons recalled by not to exceed 5% of both sexes.

PART I.

8. "What Does Little Birdie Say?"—Tennyson.
The life of a baby compared to a bird in the nest.

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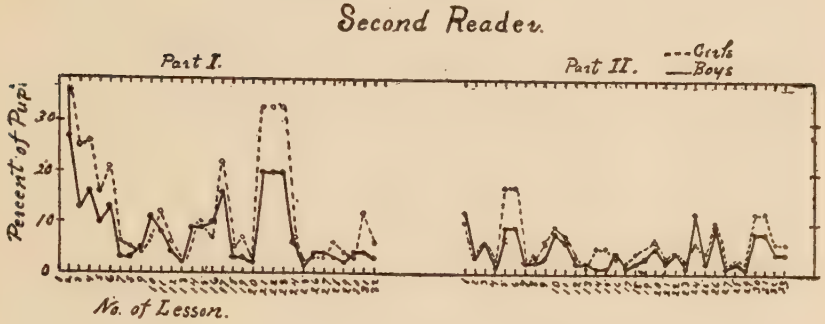
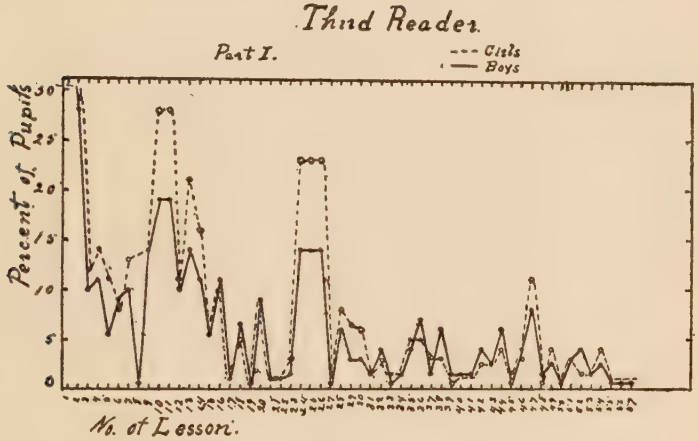
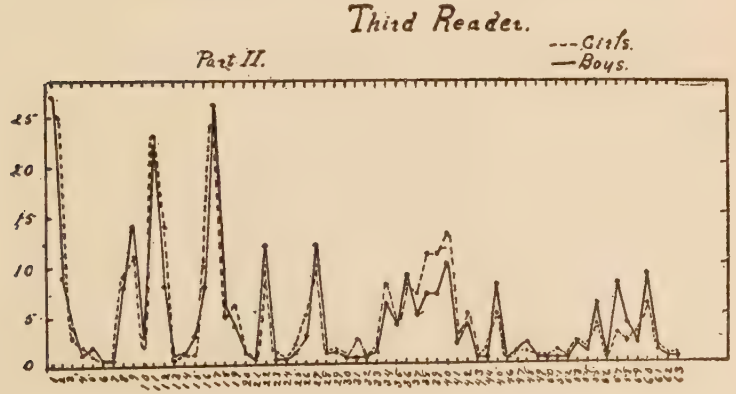
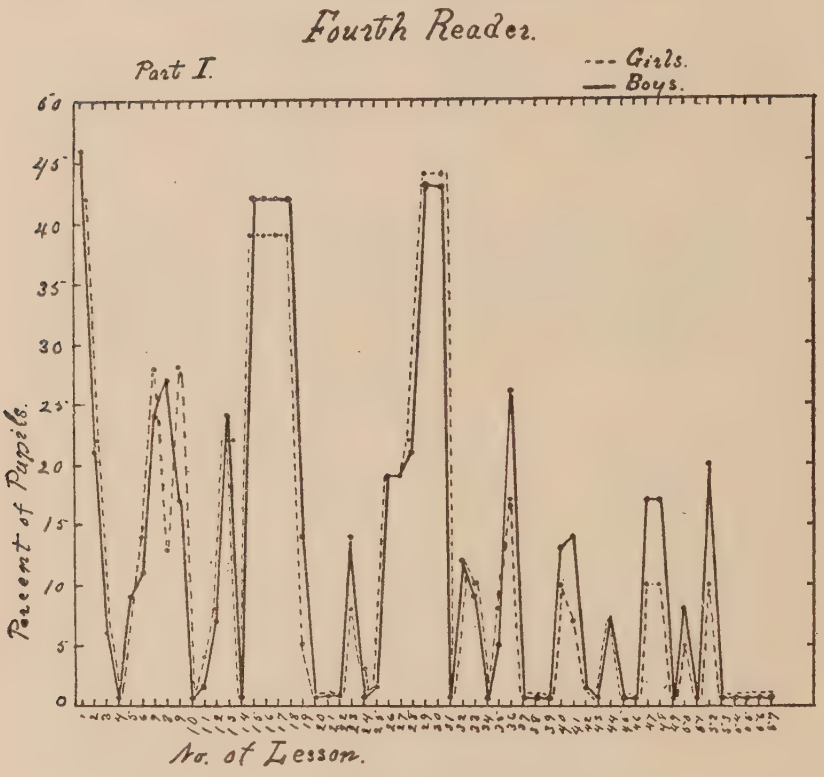
[1] Most of the pupils fell within the range of these ages and the variations were slight and of little significance.

[2] It is well known that most children read all the attractive lessons over and over before they are formally studied.


Second Reader.
Part I.
Part II.
---Girls
—Boys
Percent of Pupils
30
20
10
0
No. of Lesson.


Third Reader.
Part I.
--- Girls
— Boys
Percent of Pupils
30
25
20
15
10
5
0
No. of Lesson.


Third Reader.
Part II.
---Girls.
—Boys.
25
20
15
10
5
0


Fourth Reader.
Part I.
--- Girls.
— Boys.
Percent of Pupils.
No. of Lesson.

Fourth Reader.
Part II
---Girls.
—Boys.
Percent of Pupils.
No. of Lesson.

9. A boy imagines his kite as high as the stars; contradicted by a passing man and given a little information as to the correct distance. Instructive.

13. "Keep Trying"—"Drive the nail aright, boys, Hit it on the head," etc.

18. A little boy attempts to tell a dog story; not interesting except as a typical child's effort.

20. "Work while you work; play while you play:
This is the way to be cheerful and gay." etc.—M. A. Stodart.

25. Short poem treating of a rainy day in life.

26. A family of boys telling what "they will be;" one resolves to comfort and love his mother.

27. Poem—six little orphan chickens nestled at night under a feather duster.

29. A lesson on brotherly kindness pointed out in a rather extravagant story of a horse and his blind mate.

30. A fable—"The Humming-Bird and the Butterfly."

PART II.

4. A rule about fretting. "All children should remember this little rule, and begin to follow it while young."

7. "Words that Deceive." "A lie that looks like the truth is the worst kind of a lie."

8. "Twinkle, twinkle, little star."

12. "Speak Gently." A well known poem.

13. A brief account of swallows building a nest over a little boy's window.

16. An eagle flies away with a rattlesnake and is killed by it.

17. "The Drink For You." A temperance poem.

18. A brief natural history of the harvest-mouse.

19. Prose rendering of the "Leak in the Dike."

21. "Great, wide, beautiful, wonderful World." A poetical picture of the world from Lilliput Lectures.

22. Story of a girl who was so kind to the birds that they came to her for food.

28. "The Spider." Similar to No. 18 with a lesson on perseverance.

C. Lessons recalled by a great number of children.

PART I.

1. A life-like sketch of some boys playing at top.

2. Story of a little girl's lamb that remembered her after a long absence.

21, 22, 23. A simple rendering of the story of King Midas, or the Golden Touch.

PART II.

5, 6. A story of a little girl's visit to the inhabitants of the Arctics.

THIRD READER.

A. Lessons not recalled by any one.

PART I.

8, 50, 55, 56, 57. Topical reviews, picture lessons, etc.

19. Story of a rain-drop. Instructive.

PART II.

7, 43, 52, 56, 62, 63. Topical reviews, etc.

6. "Song of Summer."—Mary Mapes Dodge. Short.

16. "Golden-Rod." Poetical lesson on contentment.
21. Collection of old proverbs.
24. Kind acts rewarded.
30. Similar to No. 16. Discontented Buttercup.
32. Moral precepts in verse form.
46. Moral lesson on dreaming and doing.
49. "A seed." Two little verses.
50. Life of a little girl saved by a bird. (An interesting story to the writer of this paper.)

B. Lessons recalled by not to exceed 5% of both sexes.

PART I.

17. A short prayer in verse.
21. Moral lesson — smile and the world smiles too.
22. "Can you?"— Mary E. Folsom. Designed as an elocutionary lesson.
23. Short lesson on true courage.
27. A short allegory on human life.
31. Lesson on conduct. Verse.
32. About ants. Instructive.
33. Two pages from "Alladin's Lamp."
34. A bird's lament for her nest. Verse.
35. Duty to the aged. Verse.
37. "The Little Brown Thrush."—Lucy Larcom.
39. Some games. Instructive.
40. "Why People Eat." Instructive.
41. "Suppose."—Phœbe Cary.
42. Moral lesson—Look to your own faults first.
43. Stories of parrots.
45. Moral lesson on delay.
46. The Dog in the Manger. A fable.
48. Moral lesson on doing and giving.
49. The world's co-operation in making a pudding. Instructive.
52. "Spring is coming."—Mary Howitt.
52. "The Dog and the Shadow."
53. A short bright story of two little pigs.
54. "May's Good-Night."—Mary H. Burnett.

PART II.

3. Short account of how a dime is made. Instructive.
4. Play of children as seen by adults.
5. Short account of silk production. Instructive.
10. "Speak the Truth."
14. Verses on the Beautiful in Character.
15. What Live on Flowers? Instructive.
20. "Father is Coming."—Mary Howitt.
23. The Wolf in Sheep's Clothing. A Fable.
25. "What God Hath Made."—W. B. O. Peabody.
26. A comparative study of teeth. Instructive.
31. About fruit. Instructive.
33. A study of the hand. Instructive.
35. A comparative study of the hand. Instructive.
42. "The Wind and the Leaves." Allegorical.
44. "Sleigh-Bells." A jingling poem.
45, 47. About metals. Instructive.
48. Anecdote of a dog.
51. Two verses about a happy girl.
53. About birds' nests. Instructive.

54. A poem—All things come from God.
58. Longfellow's Beautiful Rain in prose form to be put into verse.
61. "The Hour of Prayer."—Mrs. Hemans.

C. Lessons recalled by a great number of children.

PART I.

1. A dog that cared for his blind master.
2. Hans Andersen's Five Peas in a Pod.
10, 11. Nellie Grant as the ideal little girl.
24, 25, 26. Paul Dombey. Adapted from Dickens.

PART II.

1. Biographical sketch of Washington.
11. Story of a dog saving a child from drowning.
17. A dog saving a boy lost in the snow.
40. "Piccola."—Celia Laighton Thaxter.

FOURTH READER.

A. Lessons not recalled by any one.

PART I.

14, 20, 34, 37, 39, 43, 49, 56, 57. Topical Reviews, etc.
4. About the hand. Instructive.
10. Fables—Farmer and the Stork, The Crow and the Pitcher.
21. "The Voice of Spring."—Mrs. Hemans.
22. "The Grave."—James Montgomery.
31. A few lines from Byron heroic.
38. Fable—The Wind and the Snow.
45. "Birds in Summer."—Mary Howitt.
46. A stanza of four lines. Moral.
51. Classification of the teeth. Instructive.
53. "Kitty."—Miriam Douglas.
54. Riddles and humorous plays upon words.
55. Use of metals. Very short and instructive.

PART II.

44, 51, 52. Topical Reviews, etc.
4. Short abstract discussion of silent reading.
19. The Romans. Short extract from E. A. Freeman.
20. Short account of the Sahara. Difficult.
31. Allegorical story of a leaf. Human life.
34. "The Creation."—Addison.
36. A story with a moral.
38. Some of Poor Richard's Sayings.
39. A one-page story of heroism, from Carlyle.
41. A part of the 106th Psalm.
45. A study in words from Webster's Spelling Book.
47. Extracts from the Bible.
48. The Christmas Dance, from Dickens's Christmas Carol.

B. Lessons recalled by not to exceed 5% of both sexes.

PART I.

11. A few lines from "How Sleep the Brave."
24. A few simple rules of health.
25. A model composition with suggestions.
42. "Wanted—A Boy." A moral lesson.

PART II.

10. About the atmosphere. Difficult and instructive.
17. Monkeys making a bridge. Instructive.
21. "Babie Bell."—T. B. Aldrich.
27. Biographical sketch of Adams and Jefferson.
32. "Young Lochinvar."—Scott.
35. Biographical sketch of Andrew Jackson.
40. "Burial of Sir John Moore."—Wolfe.

C. Lessons recalled by a great number of children.

PART I.

1. Sketch of Franklin, with his own story of the whistle.
2. A man telling a king the story of the locusts. An odd story.
7. Preparing for Christmas. A selection from "Little Women."
9. "Ellen More."—Mary Howitt.
13. "The Old Oaken Bucket."
15, 16, 17, 18. The Ugly Duckling, from Hans Andersen.
26, 27. The Life and Anecdotes of Columbus.
28. "The Day is Done."—Longfellow.
29, 30. Story of a dog that wandered off into the world and after a long time saved the life of a child.

PART II.

1. Sketch of Daniel Webster.
11. "The Gemsé Fawn." Pretty story in verse.
12. Mr. Squeers and the Boarding School.—Dickens.
14, 15, 16. The Battle of Bunker Hill.
18. "Flowers the Stars of Earth."—Longfellow.
22. "We are Seven."—Wordsworth.
25. Marshall Macdonald rescuing a little drummer boy carried down by an Alpine avalanche.
28. "Lucy Gray."—Wordsworth.
43. "The Little Match Girl."—Hans Andersen.
50. An Arabian horse saves his wounded master by taking the man's belt in his teeth and bearing him home.

SUMMARY.

	Second Reader.	Third Reader.	Fourth Reader.
Per cent. of total number of lessons not recalled,	1	17	33
Per cent. of lessons recalled by not to exceed 5 per cent.,	34	40	11
Per cent. of lessons recalled by a great number of children,	10	9	23
Per cent. of lessons recalled by an intermediate number,	55	34	33

This characterization of lessons has been presented that the reader might see for himself the number and the nature of the lessons falling under the principal divisions. Space does not permit the discussion of details or a presentation of a characterization of all the lessons of the various readers. The foregoing gives a rough gradation of lessons from the impressive

to the indifferent. Bearing in mind that this study is based upon the returns of about 500 children to each Reader, it is a very severe criticism to say, that no one remembered certain lessons. From this point of view, about 16% of the aggregate number of lessons in the three Readers represents time wasted. Little more can be said for the 28% named by not to exceed 5% of the pupils. That is to say, that 44% of the number of lessons in the Indiana Series could have been omitted without loss to the pupils.

An examination of the diagrams and the foregoing classification leads to the following conclusions:

The first lesson of the different Readers is well remembered, also the continued lesson, or long story.

All of the lessons remembered to any great extent, except a few remembered for their oddities, are in terms of experience the child can realize in himself.

The lessons remembered most are especially natural, or life like.

The curves of the sexes are remarkable in agreement, that of one appearing a duplicate of the other. The principal difference is in the number of lessons remembered, girls remembering more than boys.

The lessons not remembered by any child are too short to excite interest or do not treat of things a child can appreciate.

The mere instructive lesson; the moral and its setting; abstract poems concerning duty, happiness, love of nature, etc., make up the bulk of those remembered by 5%, or less.

II.

No. 2. Which one did you like best? What was it that you liked?

The range of preference was great. In very few cases did more than 10% of the pupils prefer a given lesson. The extreme was for the first lesson of the Second Reader, which was preferred by 21%.

It seemed difficult for many pupils to decide which of the lessons they preferred; *e. g.*, many said they "liked them all (all they remembered), but thought they liked best, etc." But when it came to saying what it was they liked about a lesson no hesitation was apparent. Because of the lack of decision in the former, the writer is inclined to believe that the number remembering a lesson is a better indication of what impressed the children than the number preferring the same.

The following general classification (Table 1) of the lessons

TABLE I.

Distribution of preferences as to Poetry and Prose.

	Number of Selections.	Per Cent. of Children Preferring.	
		Girls.	Boys.
Second Reader.			
Poetry	18	14	8
Prose	47	86	92
Third Reader.			
Poetry	40	22	15
Prose	80	78	85
Fourth Reader.			
Poetry	31	33	27
Prose	78	67	73
Fifth Reader.			
Poetry	Work	81	66
Prose	Irregular	19	34
Total.			
Poetry		37	29
Prose		63	71

into poetical and prose, together with the preferences for the same, shows the total number of choices falling upon poetical selections to be large, notwithstanding the number of prose selections in the Readers is more than twice that of poetry. A remarkable increase in the preference for poetry appears in the Fifth Grade where such poems as Evangeline, Thanatopsis, Snow-Bound, etc., were read. In every case the girls lead in the preference for poetry.

Some facts of general significance appear in the table. There is a growth of interest in the poetical coincident with age, beginning with a low per cent. and ending with a high per cent. It is probable that young children are interested only in the rhythm of verse as found in rhymes of the Mother Goose type, and that real poetry receives little recognition before the adolescent period. The general preference for poetry in the Grammar Grades (Fifth Reader) is, at least, a vindication of the right of such poems as Evangeline and Thanatopsis, to a place in the Seventh and Eighth Years of the Course of Study. The poems in the Second and Third Readers are chiefly those of sentiment and thought but the preferences fall upon those in which rhythm is prominent; as

"Two little kittens, one stormy night,
Began to quarrel, and then to fight." Popular, in the Second Reader.

"Now, such a story I never heard!
There was a little shivering bird!" Popular, in the Third Reader.

In the Fourth Reader a transition is shown in preference for "We Are Seven," and "Old Oaken Bucket," with scattering preferences for more weighty verses. Then in the Fifth Reader are many preferences for "Rainy Day," Thanatopsis," "Evangeline," etc. In general, the interest in verse begins in childhood with the rhythm and passes over gradually into sentiment and thought in adolescence. The makers of our text books have not taken this into account.

Since the subject matter of a selection does not depend upon the form, a close view of the children's interests necessitates a classification of the lessons with regard to general theme. Table II presents the relative preferences for selections classed under the given themes.

TABLE II.

Classification of lessons according to theme, showing preferences for each class.

	2nd. R.		3rd. R.		4th. R.		5th. R.		Total.	
	G. %	B. %	G. %	B. %	G. %	B. %	G. %	B. %	G. %	B. %
Fables,	1	1	3	5	0	1	0	0	1	2
Heroism,	4	3	0	0	10	24	4	7	5	8
Biography,	0	0	12	11	7	6	2	4	5	5
Stories of Animals,	19	21	12	14	14	11	0	0	12	12
Adventure,	0	0	0	0	0	2	0	1	0	1
Information,	2	1	2	4	2	2	3	1	2	2
Moral Precepts,	4	3	9	8	0	2	17	18	7	8
Stories of Daily Life,	39	41	28	24	32	20	35	35	34	30
Description,	4	3	4	0	3	3	33	30	11	9
Unclassified,[1]	27	27	30	34	32	29	6	4	23	23

In this connection some idea of the reasons given for these preferences is necessary. (See No. 2. of the syllabus.) After reading a large number of answers to this part of the question, the following empirical classification was determined upon.

Reasons for preferring:

1. No reason given.
2. "Interesting"—only such as employed this word and it may mean different things in different cases.
3. "Beautiful," "nice," "pretty."
4. All answers indicating the desire for knowledge the ruling factor in the choice.

[1] A large number of pupils preferred selections from other books, and as we had no means of knowing where to look for these preferences, they were placed with the few lessons of the Readers that failed to fall under the other heads. The schools from which these papers were received have in the school libraries several sets of Readers used as supplementary texts.

5. All basing the preference upon the acquisition of a moral principle.

6. All in which the child found pleasure in his experiences reproduced in the lesson; *i. e.*, true to life.

7. All indicating the child's pleasure in heroic action.

8. Miscellaneous and oddities.

For results see Table III.

TABLE III.

Classified as to the basis of the preference.

	2nd. R.		3rd. R.		4th. R.		5th. R.		Total.	
	G. %	B. %	G. %	B. %	G. %	B. %	G. %	B. %	G. %	B. %
1. None,	20	17	8	9	6	6	5	12	10	11
2. "Interesting,"	0	1	2	2	3	4	4	10	2	3
3. Beautiful,	7	7	5	3	2	4	3	0	4	4
4. Information,	7	9	9	11	6	10	9	10	8	10
5. Moral lessons,	13	13	17	14	42	30	26	25	26	20
6. True to life,	39	33	27	25	21	18	22	18	27	24
7. Heroic,	4	7	17	20	11	24	5	12	10	16
8. Unclassified,	10	13	15	16	9	4	26	13	13	12

From this we find that the children preferred most lessons that suggested a moral truth, a bit of real life or heroic action. The boys lead in the latter. A gradual decline of interest in the life-like is observed with a corresponding gain in the moral and the heroic. In the Second Reader nearly 40% were attracted by the life-like, while in the Fifth about 20%. It is probable that young children are content with the images called up by a selection, while older heads look for hidden significance and abstract principle. To the child it is enough that he loves a thing "because it did" a certain way, but the youth scorns such a make-shift, basing his admiration upon the presence of practical suggestion or laudable personal characteristic. Yet even in the case of the youth, are we sure that he has not employed his reason for the concealment of his original simplicity?

No marked sex difference appears either in preference or in basis of preference, and the uniformity of per cents. in Table II and III shows that in this respect girls and boys stand upon equal footing. The nicety of balance between the per cents. for the sexes gives peculiar force to this result.

Table III is indicative of the interests of the children. Its results differ from the classification by themes because the different phases of the lesson appeal to different individuals. In general, it represents what the child saw in the lesson. Table II gives about 32% of the preferences to Stories of Life, 12% to Stories of Animals, 7½% to Moral Precepts, 1% to Fables, 6% to Heroism, and 2% to the instructive. Table III gives reasons for preference about 25% as life-like, 23% as Moral

Lessons, 13% as Heroic and 9% as instructive. From this it appears that the fable received little consideration, and that even the moral lesson without the formal statement in conclusion, but bearing upon it the marks of a moral purpose, received less attention than the simple story whose moral force was felt and appreciated. It is further observed that the heroic in action is given more consideration than the formal hero, and that lessons designed to be instructive receive little regard from those whose preferences lean toward knowledge. The charge is often made that children have no regard for moral ideas, no feeling for the divinity of right action and no love for knowledge; these results show that children do appreciate such things when presented in terms of their own experience. Take out of their text-books the sermon, the philosophical fable and the cold stiff hero, and paint into them the good, the true and the heroic in colors from life.

III.

No. 3. If you were taken to a book-store and told that you might select just one book for your own, what would you take?

The choice of the children fell upon 246 different books. Twelve of the leading books are given here with the per cents. of the girls and boys choosing the same.[1]

TITLE.	GIRLS.	BOYS.
Longfellow's Poems,	11%	8%
Robinson Crusoe,	7	12
"A History,"	5	9
Bible,	5	4
Seven Little Sisters,	4	3
"A Story Book,"	3	5
Black Beauty,	2	3
Uncle Tom's Cabin,	2	2
Little Lord Fauntleroy,	3	1
Man of the House,	2	2
Little Women,	2	0
George Washington,	2	3

None of these books can be said to be popular, unless it be Longfellow. While of the total number of pupils only about 10% chose this book, the number of girls in the Fourth and Fifth Readers choosing the same is about 14% and 25% respectively. Deducting the number of pupils in the Second Reader, since they had little opportunity of becoming acquainted with Longfellow's writing, we find that 14% of the girls, and 10% of the boys chose a volume of his poems.[2]

[1] For a similar list see Report on Child Reading, by H. C. Henderson. Report of the Department Public Instruction of the State of New York, 1897.

[2] In a Study in Moral Education, by J. R. Street, PEDAGOGICAL SEMINARY, July, 1897, p. 28, Longfellow is shown to be the most popular author among young people.

In Table IV is shown the distribution of choices among the different classes of books chosen, according to text-book gradation.

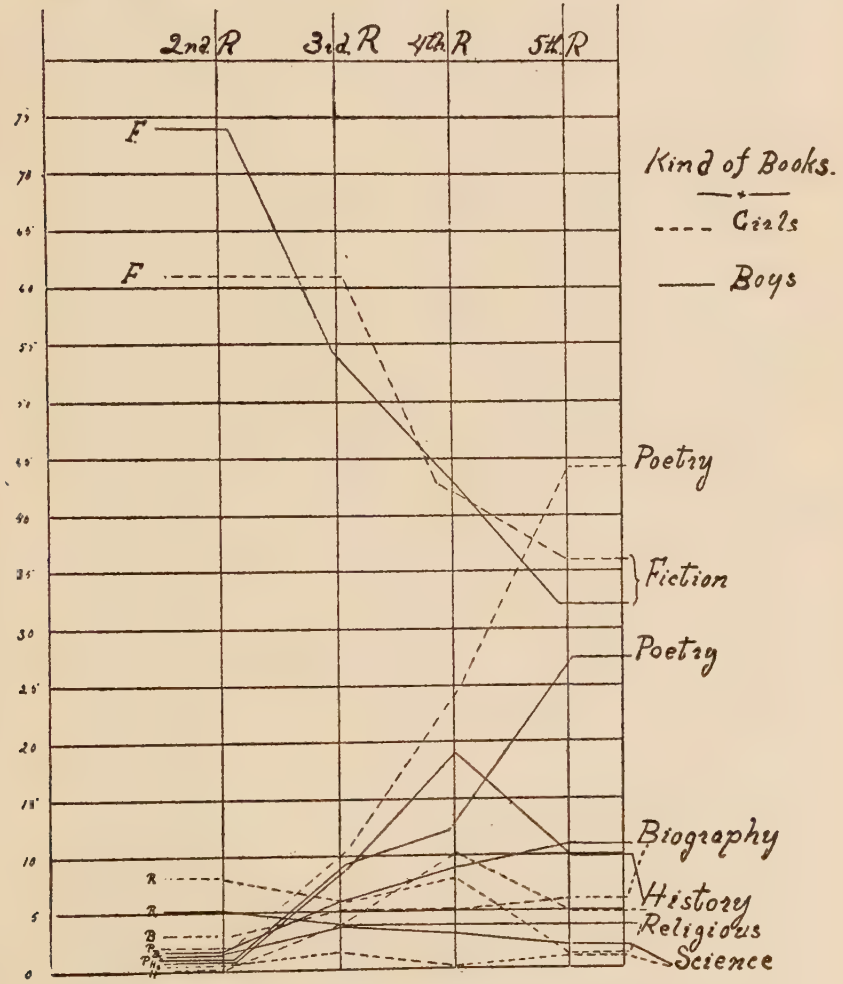
TABLE IV.

	Reader.	II.	III.	IV.	V.	Totals.	
1. Fiction,	Grs.	66%	66%	42%	36%	53%	53%
	Bys.	74	54	43	32	53	
2. Poetry,	Grs.	2	10	24	44	18	14.5
	Bys.	1	9	13	27	11	
3. Biography,	Grs.	3	5	5	6	5	5.5
	Bys.	2	6	9	11	6	
4. Travel,	Grs.	0	0	0	0	0	0.5
	Bys.	0	0	1	5	1	
5. History,	Grs.	0	4	10	5	5	7.5
	Bys.	1	9	19	10	10	
6. Religion,	Grs.	8	6	8	1	6	5.0
	Bys.	5	4	4	4	4	
7. Science,	Grs.	1	2	0	1	0	2.0
	Bys.	2	4	3	2	3	
8. Humor,	Grs.	0	0	0	1	0	0.5
	Bys.	1	1	0	2	1	
9. Miscellaneous and Unintelligible.	Grs.	20	6	11	6	10	10.0
	Bys.	14	14	8	7	10	

from this it appears that 53% of the children chose fiction, 15% poetry, 7% historical books, 6% biography and 5% religious books. This indicates a great interest in the story and the novel. The poetical works chosen were the poems of Longfellow, Bryant, Riley, Lowell, Whittier, Holmes, and the Cary sisters.

Sex differences are found here. The boys possessed greater individuality of choice. Though the number of boys (890) was less than that of girls (1,060), the choices of the former fell upon 175 different books, the latter upon 157. The range of choice is represented by the average number of pupils choosing each book. The averages for girls were: Second Reader—

4.2+, Third Reader—4.8+, Fourth Reader—3.7+, and Fifth Reader—4.2+: for boys 4.8+, 2.9+, 2.5+, and 2.6+. In both the maximum range was reached in the Fourth Reader.



In order to facilitate the comparative study of Table IV, its data are presented in graphic form. From this it appears:

1. *Fiction.* That there is little differences in the sexes; both showing a gradual decline with the advancement of age.

2. *Poetry.* That the interest of both sexes increases rapidly with age, but that the girls lead with a constant gain.

3. *Biography.* That the boys lead.

4. *Travel.* That books of this kind did not interest either sex.

5. *History.* That the boys lead, but the girls follow in parallel; the maximum is reached in the Fourth Reader.

6. *Religious Books.* That the interest is approximately constant.

7. *Science.* That the general interest is small, the boys leading.

8. *Humor.* That the interest is very small. Humor is the product of the mature, and the highest types are found among the most mentally acute. The appreciation of it begins about the time of adolescence.

The curves show that the child comes to the Second Reader with a great interest in the story, while interests in other kinds of writing have barely taken form. The broadening influence of the school makes him conscious of other things, especially of poetry, where he finds things that cease to be fiction when he feels them true of himself. In the Fifth Reader poetry and fiction become rivals, the former favored by girls, the latter by boys; this results in a decline of interest in other literature.

The curves of the sexes for biography, history and poetry have the same general direction and suggest a greater susceptibility of girls to school influences. The school turns its forces upon boy and girl alike, but meets greater resistance in one or the other. At the start the sexes have much in common, but growth brings divergence.

A general sex difference appears from an examination of the books peculiar to the choice of each. Both lists contain a large and approximately equal per cent. of fiction, but this fiction differs in kind. Among the works of fiction chosen by girls are many books that portray the home-life and every-day thought and emotion. The love story interests the older girls. Many boys preferred fiction reciting the exploits of the adventurer in the garb of the scout, the explorer, the soldier, or the "young man making his way in the world." The books not belonging to the class of fiction are of a practical nature, but show the same differences; the girls choosing more of those relating to deportment and social and domestic training, while the boys led in those relating to industrial or professional lines. In general it seems that the girls have greater interests in the field of action where affection and kindness are striving for the noble and the true, the boys in that field of action where strength, courage and honesty of purpose struggle against the more material environment.

IV.

The usual objection to work of this character is that children have acted in conformity to the desire of appearing well before their teachers. If these children were controlled by such motives, marked differences in the choices of different schools should have appeared. A careful examination failed to show such differences. If such deception upon the part of children is still maintained, it must be assumed that the forty-three teachers in charge of them had common tastes. But the first question is scarcely open to this objection, because the child could win honor only by the number recalled. Any way, the most skeptical must admit that the 1,950 children did remember certain lessons, failed to remember others, and did choose certain things.

In answering the first and second question the children have unconsciously criticised their text books. Their preferences indicate that children demand a text book containing selections complete in themselves, simple and charming in style, dealing with thoughts and emotions common to childhood. It is often maintained that Readers are not intended to please children, but to teach them to read, a serious business in which their own desires should receive no consideration. But we are not considering the matter of mere word recognition—the raised letters upon stoves have sufficed to introduce many a child to this sign manual. Schools make more of reading than this. The child's ignoring the mere word lesson is rational. It is often argued that such lessons are to be enlived by the teacher; but if the teacher has time for such work, she can select something to her taste. There is no need of crowding out of the child's book matter that would interest him to make room for something for the teacher who, if able to use such material, is competent to select for herself.

In the efforts to serve the popular will, all sorts of things have been put into the school Reader. It is proposed to afford moral instruction by a great array of short sermons and principles upon the theory that some of them may hit somewhere. For the sake of variety, the finest stories are presented in bare outline, and five or ten line selections from noted poems thrown in between. All such lessons fall short of the intent. It is the lesson that the child can live through and make a part of his experience that makes an impression. Moral qualities are nothing until they can be seen and felt in the relations of things. To the child "politeness" is a word in the dictionary, but "polite boy or girl" is a painting upon the wall.

And lastly, there are many who believe that the deep interest aroused by a master-piece of juvenile literature is the child's nascent period for word acquisition.

General Conclusions.

1. The literature most appreciated by pupils in the elementary schools is that which presents the true, the beautiful, the heroic and the good in the same concrete way as the busy world around them. Fiction and poetry are the preferred forms.

2. The complete narrative makes a lasting impression, while the story in outline is treated as uninteresting.

3. The child enters school with a great interest in the story, but interests in other lines are awakened and absorb more and more of his interest as he advances.

4. Sex differences increase with the grades. Girls taking more interest in the emotional side of life; boys in the activities and struggles by which ambitions seek realization. Boys show greater individuality.

BIBLIOGRAPHY OF CHILD STUDY.[1]

By Louis N. Wilson, Librarian, Clark University.

As Librarian of Clark University, I have received hundreds of requests by letter for references on Child Study, and am constantly required to assist special investigators here. To meet this demand I have drawn up the following list of books, memoirs and brief articles up to date, selected from a far larger list kept here. The alphabetical arrangement by authors has been chosen because it brings together the contributions of each writer, but to make the bibliography of use for topical reference there is appended at the end an index of the more important subjects arranged under the leading captions.

Under section II the titles of the leading serial publications dealing with Child Study are given; under section III the Reports, Serial Studies, and Transactions of Societies, and, finally, under section IV, a brief list of current text books on themes most nearly allied to the work in this field. For a larger bibliography, which is contemplated, I should be glad to receive other publications, titles, or suggestions.

This list represents works of all degrees of merit, for I have chosen to err on the side of inclusion rather than of exclusion, and have tried to meet the needs of teachers and parents as well as psychologists.

In the brief notes appended to the publications I have had the assistance of several members of the Psychological department who have kindly looked over the list. I am also indebted to the Bibliographies of Professor Earl Barnes (No. 22), Dr. W. H. Burnham (No. 86), Dr. A. F. Chamberlain (No. 95), Dr. O. Chrisman (No. 105), Dr. G. S. Hall and J. M. Mansfield (No. 210), Dr. E. M. Hartwell (No. 222), Professor Will S. Monroe (No. 321), the Index Catalogue of the Library of the Surgeon-General's Office (No. 590), the Transactions of the Illinois Society for Child Study (No. 559), to Mr. Frederic Burk, whose paper in the current issue of the *American Journal of Psychology* has 109 titles on the growth of children, and to a list of titles on the various phases of adolescence kindly supplied by Dr. G. S. Hall, who is preparing a book on this subject.

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III. REPORTS, SERIAL STUDIES, AND TRANSACTIONS OF SOCIETIES.

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in 1876. Contains many valuable papers on care and training of feeble-minded children. May be obtained from A. C. Rogers, M. D., Faribault, Minn.

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SOME REMARKS ON NUMBER AND ITS APPLICATION.

By D. E. PHILLIPS, Clark University.

The reading of Prof. Dewey's criticism of my article on "Number and its Application Psychologically Considered," in October Number of PEDAGOGICAL SEMINARY, has led me to read the "Psychology of Number" the third time. The criticism necessitates not only a closer consideration of that book, but also an explanation that I should otherwise omit. It is too much to suppose, as this criticism does, that my work was directed against the "Psychology of Number." For two years before it appeared I was associated with Prof. Graham, who has published an arithmetic in which number as *ratio* and the *rational process* constitute the key note. This theory he has held and put into practice for nearly ten years. While his book was in press the "Psychology of Number" appeared, and so completely did it embody his ideas that, at first, he supposed that his principles had been seized and elaborated into a theory. While visiting schools two years ago, I found various systems and modifications in use. In one case, where the idea of measurement dominated the teaching of number from kindergarten up, I asked the teacher who had charge of a class of children six or seven years old, if they could count abstractly or follow the series of names, she instantly replied that she did not know, as she never allowed them to express numbers except as they grew out of their measuring and comparing the material furnished. I found Miss Walter alive to her work and the children full of interest, so much so, that I fear that at first I attributed the power of a most excellent teacher to the principle she used as a tool. Observation of the same kind of work under other teachers impressed me as poor lessons in either number or form, and as accompanied by no more delight than a repetition of the multiplication table. These, and other instances, also Speer's and other late arithmetics, have been in mind in my discussion equally as much as the "Psychology of Number."

On page 430 Prof. Dewey says: "In order to define the problem I may refer to an apparent misconstruction by Mr. Phillips of the doctrine of the 'Psychology of Number.' On pages 227, 243, 267, 273, 274, he implies or states that the ratio idea is insisted upon in this book to the exclusion of the series idea, or at least to the very great subordination of the counting process." Now let us see what intimation there is that these pages refer to that book only or at all. On 227 reference is made to "Psychology of Number," Lefevre's Number and its Algebra, and Schubert's article; on 243 Speer's works and "Psychology of Number" are under consideration; on 267 no books whatever are mentioned, and only the general idea of teaching number by comparison is presented, and the page contains a foot note referring to Russell's article, and pages 273 and 274 are taken up in the discussion of Speer's, Graham's, McLellan and Ames's, and Giffin's arithmetics.

In this connection it is proper to refer to Prof. Dewey's foot note concerning the confusion of the doctrine of Speer and of Dewey and McLellan. On page 430 Prof. Dewey, after explaining the difference, says: "On page 244 Mr. Phillips quotes a sentence from the "Psy-

chology of Number," and in the same connection, as if it bore on its interpretation, makes the following quotation: 'Reasoning in arithmetic establishes equality of relations. Reasoning in any subject equality or likeness of relation.' This latter sentence is quoted from Mr. Speer." He then wishes to know by what rule of criticism one is justified in quoting from one author to interpret another. First let us examine the connection in which this occurred. On the previous page this same sentence is quoted from Mr. Speer, for which proper reference is given, also the following from the "Psychology of Number:" "It requires considerable power of intellectual abstraction to count three. . . . . The manifestation of the conscious tendency in a child to count coincides then with the awakening in his mind of the conscious power of abstraction and generalization. This also indicates discrimination and relation." (p. 27.) After showing that these statements cannot be true, especially in case of the mathematical prodigy, I quote on the following page from Dewey and McLellan: "Quantity is limited quality, and there is no quantity save where there is certain qualitative whole or limitation." Then considering the difference between the reasoning involved in the fundamental operations with the number-series, and mathematics in the higher sense, it is stated that "this philosophy (referring to the three previous quotations) not only ignores any such difference, but any other that might exist." Then follows the sentence quoted from Mr. Speer on the previous page to which Prof. Dewey objects. Now as to whether it is proper to couple these two ideas together, I invite the reader to a comparison of "conscious abstraction, discrimination, and relation," said to be necessary in order to count three with "equality or likeness of relation" as presented by Speer. If they do not express the same idea, then I plead guilty to a misconstruction; but the latter was not quoted as any explanation of the former.

A few weeks ago Dr. White wrote an article aimed at the theory and practice as stated in Speer's books. At once Dr. McLellan came out, stating in *The Intelligence*, Jan. 1, 1898, that "the old fallacy is once more to the front, that of identifying the abuse of a principle with the principle itself." I take it to be the same article taken up by Principal Cox before the George Howland Club, a report of which is found in *The Intelligence*, Dec. 15. Here it is stated that a learned author has attacked the methods employed *more or less* by the teachers in the Chicago public schools. After citing Newton, Euler, and quoting from Dr. Harris's preface to the "Psychology of Number," and a very striking quotation from the book itself, on page 702, the writer says: "It is with the eminent authorities cited above, and not with the Chicago teachers, that the venerable Doctor who criticises our method must settle his differences." Now if there is such confusion as this among the advocates of these theories, an outsider should be excused for going astray.

I have no doubt that the disciples of the Speer system once believed that they were faithfully applying the doctrine of the "Psychology of Number." But in *Public School Journal*, Jan., 1898, there is a letter from Mr. Colwell, stating (speaking for Mr. Speer, for the letter had been shown him and received his approval) that "So far as Mr. Speer's method of presenting mathematics is concerned, it does not contemplate the study of number as ratio or number in any form." From this we understand that it is a study of quantitative relations. "Hence the necessity," he says, "for distinguishing between mathematics and number." (p. 240.) It may not teach *number* as *ratio*, but the essence of the system is, nevertheless, *ratio*.

In theory, however, Mr. Speer has the advantage of being definite.

In practice no one can help but see the wide difference between the practice outlined in the "Psychology of Number" and that of Speer. The chapter on "The Psychical Nature of Number," the two on "The Origin of Number," and the one on "Definition of Number," are the only chapters I ever have in mind, since they are the only parts of the book in which I can see a sufficient unity. I have before me the reports of nearly a dozen reviewers who frankly confess that they do not fully comprehend it, at least as a consistent whole. Were the above chapters presented alone, and were I required to construct a system of practice, the best I could possibly devise would be in close harmony with Speer's, which, if applied at the proper period and within proper limits, I should heartily welcome. I have just finished a second review of McLellan & Ames's arithmetic, in comparison with several others, in order to see if I might better catch the spirit of the "Psychology of Number." Leaving aside the preface and definitions, I open first one book and then another for comparison. It is hard to examine a book thus and say in what the differences consist, but so far as I can see there are many from which neither the subject matter nor the presentation differs but little. The two prominent things are the problems involving *valuation* or *measurement* based on the ordinary tables; and the presentation based upon analysis in which ratio is involved. This must represent the *rational process* so emphasized in the "Psychology of Number."

I regret that the discussion must turn so much on this book which, contrary to Prof. Dewey's inference (page 429), I do welcome in my investigation, but not as expressing the whole truth. Since Prof. Dewey claims my material to be in harmony with the "Psychology of Number," the nature of the reply is determined. Weismann's doctrine of the "Transmission of Acquired Characteristics" seems to me to be somewhat paralleled by the position which the advocates of number as ratio are taking. At first Weismann held speech to be wholly acquired and as proof of non-transmission of acquired characteristics. When Romanes showed that the power of co-ordination necessary to the utterance of the needed sounds *is inherited*, Weismann at once accepted it, turning the same to his own account as a case substantiating spontaneous variation and natural selection.[1] Just so the advocates of number as ratio are now extending their theory to cover all mental phenomena in dealing with number by means of the expression—*implied* ratio. I have searched the four principal chapters that I might find "implied ratio" somewhere underscored, or special attention called to it; but only on pages 95, 96, 100, 105, 110, and 115 has any allusion worth mentioning been made to this side of the question; and the connection and inferences are absolutely inadequate to justify the extension of *implied* ratio to cover the large range of facts to which Prof. Dewey must extend it in order to claim the harmony of my material with the "Psychology of Number." It seems to me, if this is true, implied ratio was of sufficient importance to be italicized occasionally at the expense of the oft repeated *how much, so much, how many* (meaning nearly always units absolutely equal), *rational, valuation, etc.* These certainly express the essence of the book. Yet Dr. McLellan emphasizes the implied ratio in his article in *The Intelligence*, Jan. 1, 1898. Prof. Dewey makes reference to "the *practical* activity preceding the rational, "*implicitly using* the" idea involved," and on page 434 has underscored "implied" twice in reference to ratio "which comes to *consciousness* as need demands." What pedagogical significance has this *implied* ratio?

[1] Lloyd Morgan: Habit and Instinct, p. 330.

We may say that the concept love *implies* "devotion to humanity," that its strongest *implication* is the sex relation, or, according to Plato, it *implies* "a longing for the good." But how does this modify the mother's pedagogical treatment of her child? Completed concepts are evolutionary products, in fact they are never completed. For practical purposes the caterpillar is not the butterfly.

On the development of the series-idea Prof. Dewey has entirely overlooked the fundamental material in the first part of my article, and, taking up my discussion of the application of the series-idea, devotes over a page to what he considers a confusion of *counting* with repetition of number names. This is especially misleading because it leaves out of account the fact that the series-idea has already been established as set forth in the article. The delight manifested in the series in the various ways mentioned, and becoming dominant in the early life of the mathematical prodigy, is only evidence of a previous development. To say that the exceeding delight, which the prodigy two or three years old takes in following and expressing any series of succession, is no more evidence of counting than the repetition of the alphabet by the ordinary child, is inconceivable. All the conscious intellectual phases of mind indicate that there has been a previous unconscious, or merely symbolic period. First the root then the branches.

In the "Psychology of Number," on page 163, it is stated that counting is at first mechanical, and care must be taken in the interest of the number idea to make it become *rational*. On page 81, dollars, inches, etc., are said to be "units not in virtue of any quality absolutely inherent in them, but in virtue of their use in measuring cost, length," etc. To a supposed reply that this is not so with books, apples, etc., they say: "But this is to fall into the error of separating counting from measuring already referred to. The only point is that this counting gives very crude measurement." On page 48 we are told that "All counting is measuring, and all measuring is counting." And on page 31 we have a discussion of *Relation or Rational counting*. Now the word mechanical counting is used in several places, evidently meaning what the ordinary teacher often understands by *counting*. Miss Shin says that her niece, at 26 months, "was proud of her first independent counting, often chanted the numbers;" again at 35 months she "counted to 19, also *counted by repeating names at random*." (p. 251.)

It seems rather strange that Prof. Dewey should quote to such length, and even italicize, expressions from teachers as if I were responsible for them. I gave them as collected. They should be a lesson as to what teachers consider counting, and that philosophic conceptions will be slow in taking their place. I enter a kindergarten, and ask the teacher to have her children count; they count sticks or blocks to ten perhaps, at least call the names. She then tells me that they like to *count abstractly*, which they do with the greatest delight. The teachers call this counting, and there is the expression of the idea of succession which has grown stronger and stronger from the earliest dawn of consciousness. Prof. Dewey says (page 431), "When we count we surely count something," but in following a series of any kind, the real question is in what sense is the child conscious of that something. When a child sits rhythmically tapping his foot, saying, "one, two, three," etc., even to one hundred, does he have at first a vague idea of muchness to be measured, or, when done, the slightest idea of the somewhat counted? Now in all such counting the process has no conscious meaning whatever save that each number is followed by *this* and preceded by *that*. The same is true of adults after a certain limit is reached. James points out

the fact that after a small number of beats our impression of the amount of time becomes quite vague. The only way then is by counting. Later the conception becomes absolutely symbolic, only a name.[1] The only necessary thing in the series-idea is the consciousness that what is perceived is like or similar to what has just preceded, and when children at first include all kinds of objects in their objective series they are simply expressing a subjective state of mind or a kind of abstract idea of succession previously developed, and which is not dependent upon the immediate objects considered. As I hope to show later, the first numbers, perhaps to 12 or 20, because of our ability to form a concept of them as a collection, their ready use in comparisons, etc., have a kind of psychology of their own. Undoubtedly breathing, respiration, and hosts of other processes help to build up the idea of an endless succession, without our being conscious that they in any wise influence it. Refer to Preyer, Nichols, Munsterburg, and others on the development of time, number, and space.

The existence of the series-idea is not taken for granted, but precedes Prof. Dewey's array of facts in favor of its *origin*. Does he not misinterpret motor movement? Does the child count the movements? Do not the movements simply accentuate the counting? If the child make the series *by* the movements, what guides the movements? are they accidental? The idea of endless succession is not produced *by* the movements he cites, but they are the manifestations *of* the result of previous and older activity. After summarizing these muscular movements, Prof. Dewey concludes that we get a basis for interpreting the importance of rhythm; but the rhythm in these movements is itself conditioned, perhaps on bodily functions, etc. I especially invite the reader to compare the movements therein taken by Prof. Dewey as the *origin* of the series with the *adjustment of activity* in "Psychology of Number" to which he refers, stating that "Mr. Phillips's own data confirm the statement that number is to be traced back to adjustment of activity," as shown in chapter 3, pages 35 to 44. This chapter is on the Origin of Number. Here the *idea of limit* in boundaries of land, supplies of food, etc.; *economy of energy* by the savage in adjusting the size and weight of his bow; means and end or *valuation;* the child playing with stones needs to adjust and weigh them, the savage must think the distance of the hunting ground, etc.; the idea of Balance or Equation, the means balancing the end sought; Such are the topics discussed in the pages referred to on the Origin of Number from the *adjustment of activity*. Now it seems strange that the movements given in my article being *totally* of a different kind, the earliest being traceable to bodily functions, and manifested in the spontaneity of the child rather than under the necessity imposed by civilization, should be cited as proof of the origin of number as therein presented. I do not look upon the *adjustment* of *activity* as presented in Psychology of Number as the origin of number, but as a later manifestation of a previous psychic activity.

Prof. Dewey states (page 433) that "not a single one of the questions in the syllabus given by Mr. Phillips have to do with the child's spontaneous experience *with reference to questions of quantity and magnitude;*" and hence he concludes that the data must be one-sided. In the first place it is strange that such one-sided data should support his main contentions; and in the second place you will find (page 245) that the substance of the very questions that he suggests and declares not a single one to be in the syllabus, are the first ones. I

[1] James: Psychology, Vol. I, p. 622.

will quote them: "(a) State cases where children who could not count, have distinguished *more* or *less*, objects, as eggs, young, toys, etc. How fine was the discrimination, how shown, and other details? (b) Describe games of instantaneous guessing of the number of objects in a group, noises in a series, inches, feet, or rods in a given surface, angle, etc." I have discussed (page 242, 248, 249) the results of the first question and also my observations in kindergartens on the same line of comparison. It is stated (page 248) that 135 cases for children were reported, and various examples given. I might multiply such, but, as stated (page 249), it is difficult to determine when it is *form* and when it is *number* that is recognized. We might enumerate a host of comparisons of pleasures, pains, temperatures, morality, etc., but such processes I designate (p. 267), as quite different from counting. Comparison is a process of reasoning *to which* the number series is applied rather than *from which* it is developed. The results of the second question are presented on page 249, and also reference made to similar work by Dr. Lindley on Puzzle Interest.

Without prolonging this let us summarize the points of difference, if possible. So far as my previous work is concerned, I had but three points of difference with the "Psychology of Number." Number in its ultimate genesis is independent of any, or all, vague quantity to be measured, and originates from the idea of succession which is early built up in consciousness and at first involves only the idea of similar recurring sensations without any *vague concept* of a quantity to be made definite. All the experimental work substantiates James's thought that number is primarily strokes of attention. "Little by little our number-series arises."[1] The earliest vague muchness that exists is of a serial increase rather than of a somewhat to be measured. It directs attention backward rather than forward.

In the second place the facts overwhelmingly drive me to reject that part of the "Psychology of Number" which seems to me to identify the development of the number concept with that of general intelligence or reason. As I look over the reviews, I find that I am not alone in this opinion. Indeed we might take another view by taking isolated parts, but if this is not the general spirit pervading most of the book, I am mistaken. In what other light could the sentence already quoted, concerning the ability to count three, be interpreted? What does so much talk about making mechanical counting *rational* mean? Indeed if Speer is not right in virtually identifying this *relating* and *comparing* with *reasoning* in general, in what does it differ? Prof. Dewey says (page 430), that Mr. Speer emphasizes the *how much* at the expense of the *how many*. But the *how many* of the "Psychology of Number" is not of apples, horses, sheep, etc.; it is of an exact unit that can be applied exactly to the *how much*. We are told (page 48) that we "measure distance, weight, bulk, price, cost, etc., to see *how much* there is," and (page 156), that measurement is the very essence of number.

As James rightly observes, "relation is a slippery word." Morgan makes the perception of relations the line of differentiation between animal and human intelligence.[2] Spinoza designates his second kind of cognition as *ratio*, which consists in adequate ideas of peculiarities of things; reason *(ratio)* considers things as they really are. Again the fact that this book is an application of the Hegelian idea of number doubtless gives us some understanding of the dominant idea of the book—*rational process*. According to Hegel the syllogism is the *ra-*

[1] James: Psychology, Vol. II, p. 653.
[2] Lloyd Morgan: Comparative Psychology, pp. 217-261.

tional and all that is *rational* is syllogistic. Now take the authors' interpretation of "quantity as limited quality," and have we not the essence of the entire system? I should like to know what *vague quantity* Kant's twelve categories of thought present to the mind, and especially which *one* is selected as the *unit* of measurement. We can find our way out only by a kind of mysticism that "everything is everything else."

As a rule, take from the mathematical prodigy his power to manipulate the series in the four operations, and there is little intelligence of any kind left, yet I would hesitate to say that he could not *count*, although many of them have never counted according to Prof. Dewey's interpretation. Binet gives cases of prodigies where counting has always been a matter of words, and they would become confused if required to make any practical application. In fact, in most cases, they have never applied the series to measurement, unless it can be said that the abstract series is measured on itself.

The third difference consists in my limiting the application of the ratial-idea, both pedagogically and in the range of its possible application, considerably more than I find indicated in the Psychology of Number. I state (page 245) that "This application of number is the latest and most difficult step, and no attempt should be made to force it on the child before the proper time. *The most general use of the series does not involve this comprehension and application of number.*" Dr. Harris's preface, his review of the book, *Journal of Ed.*, Dec., 1895, and the Report of the Committee of Fifteen contain warnings to this effect. Dr. Prince and others in the same issue of the *Journal* leave the same intimations. It is evident that number in an arithmetical sense may denote absolute equality of the units and hence exact measurement, or it may be used to indicate merely a series of succession with no reference to exact units of measurement. Counting and measuring do not necessarily go together in psychological experience. I have questioned rapid and accurate calculators concerning their mental operations and the training by which this power was acquired; and the idea of a series of succession has been the one thing most prominent in consciousness; neither did they have any special training in ratio or the *rational* process. I further doubt if such training is conducive to accuracy and rapidity. Calculus is the very embodiment of ratio, but we should not have much trouble to find plenty of men versed in calculus and all other forms of ratio, not only unfit to serve in a counting room, but perhaps unfit to become qualified. One could not say the extraordinary power in manipulating the series acquired by Miss Aiken's students was due to ratio or any rational process. It may be said that these rapid and accurate calculators use ratio *unconsciously* or it is *implied*. If the ratio is never made a *rational* process and never a dominant fact in consciousness, why force it into consciousness for the purpose of manipulating the series, and what pedagogical significance can be attached to it? Ratio does dress up thought and make general thinking more acute in such a manner as to fully establish its importance and justify its use at the proper time of application, but never should it be accepted as the chief pedagogical aim in teaching number. Pedagogically, the whole matter seems to me to go back to the question of *discipline* in mathematics versus the *practical application*. Certainly (page 267) I have made all the concession necessary, saying that "this analysis must not be taken as against the use of the ratial-idea at the proper stage of development, or even its incidental introduction from the beginning."

What Prof. Dewey means in his conclusion (page 434) by "a conscious series arising through a process of motor adjustment,"

I do not know. If he mean that, while the child in its mother's arms hears the clock ticking; while day and night come and go endlessly; while breathing and circulation continually come to consciousness as a never ending process; there is *motor adjustment*, and a conscious arrangement in a series, then the origin of number takes a widely different and far deeper basis than that outlined in the Psychology of Number. Even if he has reference to the movements which he quotes from my article, the same is still true. If he trace it back to the earliest bodily and functional activity of which the child is conscious, and does not imply by a "conscious series" that the child is conscious of such a formation, but that these forces only later show themselves in the conscious efforts to apply this conscious idea to impressions and things, then there is no difference, save that I do not see the *vague muchness* to be measured. The "rhythm that facilitates at counting," Prof. Dewey must trace back to the above activity, but may find it enlarged in the manner of the development, as shown on pages 235 and 236 of my article.

The fundamental difference may be stated thus: Prof. Dewey, so far as I catch the spirit of his article, contends that counting begins with a vague whole to be made definite, to which a unit is applied, and the *how many* is recognized as a collection of units marking off the somewhat counted. Later comes the period of spontaneous counting as an end in itself. After this period he would have a second application to things for the purpose of emphasizing the measuring or ratio idea. On the other hand, the evidence points to the fact that the idea of succession is unconsciously developed in the child by the never ending recurrence of various similar sensations, that later the force of these processes coming to consciousness manifests itself in the series-idea. *At first it is the series, neither the quantity nor the unit, that chiefly engages the child's attention.* In this sense counting precedes the application of the series to things. Thus the period of spontaneous counting precedes the period of counting in the sense of recognizing a quantity as a collection of units.

It is here that counting should be spontaneous, free from sensible observation, and from the strain of reason. It is here that we find teachers ignoring the series and too soon attempting to have the child recognize a number of dots, blocks, etc., as a collection of units. Here the delight in the series which should be further developed as a preparation for such work, is crushed. True this period prolonged, produces our prodigies, morbid counters, etc.; but it has not received sufficient pedagogical importance, not only in the "Psychology of Number," but in general teaching. The child's interest in, and ability to follow a series precedes the power to apply numbers to things except as they are used as a means of following the series, and not as a preconceived quantity to be measured. Hence, I say, counting precedes the application to things.

Next this mind movement must be fitted to things and impressions. Such an application may emphasize either the *series* or *measurement*, but the latter should gradually grow out of the former only in proportion as the ability to reason and compare develops. Later we have the abstract consideration of number under one of two forms accordingly as we emphasize the practical or disciplinary value of such work. Generally in arithmetic, and for practical purposes, the manipulation of the series which may be independent of ratio is of most importance; for discipline, ratio is the all absorbing thing.

While I recognize in Prof. Dewey's criticism that spirit which would make things right rather than carry a point, I am unable to reconcile his conclusions and other attitudes of these authors with

their work only on the ground of its enormous extension under the form of *implied* ratio. Or it may be that the "Psychology of Number" is a German way of saying what many people already in their way comprehend, but takes volumes to interpret. If we are to judge it by the practical part, and the book already based upon it, the latter must be our conclusion.

My work was undertaken with no theory whatever in mind, and no prejudices so far as I am aware; and what is said there grew absolutely out of my investigation. My interpretation may be wrong, and I invite examination and testing of the facts. It is to be very much regretted that this discussion should force to the front the perhaps uninteresting theoretical part and put in the background the practical part which is of most significance to teachers. Its practical side is of most importance, and must be obtained from a careful examination of the material, suggestions on text-book making, and general conclusions. Aside from any interpretation of the matter, I believe that the progressive teacher will find practical hints of value in the material. This necessitated comparison of views concerning the origin of the number concept leads to a false idea of the main aim and real value of the original work which was published with no expectation of evoking a criticism.

From the practical and pedagogical standpoint it is a question of how much time and importance shall be attached to number work and mathematics as a means of general discipline and preparation for higher mathematics, of which ratio is the very essence. The answer to this question will determine how much emphasis is to be placed on the ratio-idea or *rational process*. "Skill in computing may be acquired without any intelligent apprehension of arithmetical science, and a profound insight into the truth and principles of arithmetic may be attained without much facility in using numbers."

FORMAL EDUCATION FROM THE STANDPOINT OF PHYSIOLOGICAL PSYCHOLOGY.

By D. D. HUGH, La Junta, Colo.

Students of modern pedagogy are apt to be confused by the very different notions that exist as to the nature of the educational process. On the one hand are those who tell us that education means the development of mental power, and that subjects of instruction are of value chiefly in so far as they contribute to this end. On this theory the knowledge a subject supplies is a matter of very secondary importance, provided that it is capable of training or disciplining the so-called powers of the mind. It is desirable on this plan to study higher mathematics, not because the knowledge this subject supplies will have much value for the student in after years, but because it affords him a splendid mental training, enables him to think for himself, to grapple with the problems of life. In the same way the advocates of classical study base their arguments, in part at least, upon the discipline that this subject affords. The knowledge obtained in this study may be wholly forgotten, but the mental training secured by this means is a permanent possession. It is in this discipline or training that the value of education consists.

It is a natural result of this view of education that the method of study should be exalted above the subject matter. As President Eliot says, "The method of study and the aim in studying are the all-important things."[1] In harmony with this view the Committee of Ten practically assumed the equivalence of all subjects of instruction, provided that they are taught by equally good methods. Their value to the student is to be measured by the time he devotes to them, and the thoroughness with which they are pursued. If, for example, twice as much time is spent on Latin as on mathematics, it has twice the educational value.

In opposition to this emphasis of the disciplinary value of education, there has always been a strong tendency to make its value consist in the acquirement of knowledge. This opinion is especially prevalent among the great mass of people who do not profess to be experts in theoretical pedagogy, but who, looking at the subject from a common sense standpoint, are inclined to value an education in proportion to the amount of knowledge it supplies that is of practical value for every-day life. In its extreme form this view of education is apt to be narrowly utilitarian. Every educator knows the difficulty of having a subject introduced into the schools that does not minister directly to the material needs of the pupil, and every innovation that has not this bread-and-butter value, is apt to be resented and treated as a fad.

It is not, however, from this element of society alone that we find an emphatic protest against the over-emphasis of the formal value of studies. Evidence of this may be seen in President Baker's minority report to the Committee of Ten, and in President Schurman's criticism of the attitude of this committee in the *School Review*,[2] and in

[1] *The Forum*, December, 1892, p. 427.
[2] February, 1894, p. 93.

the growing emphasis that is being placed in the schools upon subjects that are of value for their content, as science, history and literature, as opposed to those that have chiefly a formal value. Between these opposing theories the educational novice has to choose his way or strike out a new path for himself, and any knowledge that can throw light upon this problem ought to be welcomed.

It is one of the merits of Herbartianism that it proposes to settle this question. From the high ground of philosophic principles, it professes to speak with the voice of authority, and gives its decision uncompromisingly in favor of the advocates of knowledge as opposed to those of discipline. This objection on the part of Herbartianism to formal education is so intimately related to the Herbartian philosophy of mind that it will be necessary to examine this briefly, in order to see the foundation on which this decision rests.

According to Herbart, the soul is a simple, indivisible substance which "has no innate natural talents nor faculties whatever, either for the purpose of receiving or for the purpose of producing. It is, therefore, no *tabula rasa* in the sense that impressions foreign to itself may be made upon it; moreover, in the sense indicated by Leibnitz, it is not a substance which includes in itself original activity. It has originally neither concepts, nor feelings, nor desires. It knows nothing of itself, and nothing of other things; also in it lie no forms of perception and thought, no laws of willing and action, and not even a remote disposition to any of these.[1] To this hypnothetical soul there is attributed only one power, the ability to react against the pressure that is brought to bear upon it from without, and through this reaction upon its environment the soul becomes possessed of certain states or contents, as we may call them, its ideas. Once these ideas come into existence they are forever imperishable. They may, however, have a greater or a less degree of intensity, which is increased by the fusion of similar ideas and the combination of those less closely related. As ideas become stronger, they have a tendency to occupy the whole field of consciousness, and to force the other ideas to which they are not related into the background until we wholly cease to be aware of them. In Herbartian terms, they have reached the threshold of consciousness. They have not, however, ceased to exist; for under favorable circumstances these pale shades of ideas that in the meantime inhabit the nether world of consciousness may again rise to the surface, and enter the field of conscious life. Their return is brought about by means of the entrance into consciousness of ideas to which they are related, or by the removal of those opposed to them. In order to faciliate its stay in consciousness, each idea seizes upon all others that are of a similar character to it, and by this means it makes itself stronger, and increases its chances of occupying the chief place in consciousness, which is the dominant ambition of any half-respectable idea.

Now on this theory of mind it naturally follows that there can be no such thing as formal education, for apart from the ideas there is practically no mind to be trained. "The ideas really make up the mind. The soul is regarded as little else than the battle-ground of contending ideas."[2] Feeling and willing are dependent upon the ideas, and not independent mental activities. All, therefore, that can be done with a mind is to supply it with ideas. These can of course, be strengthened and reinforced by association with other ideas of like character, which will enable them more frequently to rise into consciousness and to exercise a greater

[1] *A Text-book in Psychology.* Int. Educ. Series, p. 120.
[2] J. Adams: *The Herbartian Psychology Applied to Education*, p. 49.

influence upon the life of the individual, but no general development of mental power is possible independent of the ideas. Hence for Herbart the chief thing in education is the cultivation of the circle of thought, for out of it all the other psychical activities arise. Knowledge, not discipline, is the end of education. The prominent leaders of the Herbartian movement at present are in agreement upon this point. Dr. DeGarmo assures us that the world at large regards formal education as a myth,[1] and Professor Rein says: "The fiction of formal education must be given up."[2]

However convincing the Herbartian philosophy of mind may be, we must remember it is only a theory. No one knows that ideas exist below the threshold of consciousness. No one knows that ideas fuse in consciousness. Like all theories, Herbartianism must prove its validity by its ability to explain the facts of experience to which it relates, and by its freedom from inherent contradictions in itself. When, however, we submit it to this test, it appears to be defective for the following among other reasons:

1. Because it denies what appears to be an obvious fact of mental life that the mind can be benefited, to some extent at least, by formal training, apart altogether from the value of the knowledge received. Take, for example, such a subject as geometry. Few students, I suppose, have any practical use for this subject that is at all commensurate with the time and energy that is devoted to it, and yet it appears as if the practice it affords the pupil of solving problems for himself, and a cultivation of a habit of clear, consecutive, reasoning, have no small value for the student, whether the knowledge he derives from the subject is ever called into play or not. The same thing is true, to a greater or less extent, of every other subject. It is not wholly the knowledge which an individual receives that makes an education have a value for him, but the power he acquires through the exercise of his mental activities. But we must either give up our belief in the possibility of the cultivation of mental power independent of the growth of knowledge, or reject Herbartianism; for between this ghost theory of ideas and formal education there can be no compromise. Of course we can say with the Herbartians that the latter is only a myth, but it is hard to believe that a so generally established opinion among educated men is wholly an illusion.

2. The existence of unconscious ideas appears to be an absurd and an unnecessary hypothesis.[3] Surely the very essence of an idea is that it is an element of consciousness, and an unconscious idea is as much an impossibility as a square circle. Of course it may be said that the idea must exist in an unconscious state, for it can return to us after its departure from consciousness. But that an idea ever returns to us is an unwarranted assumption, as the so-called return or revival in consciousness of ideas can as easily be explained on other grounds.[4]

3. The supposition of a fusion of ideas that is implied in Herbartianism is open to serious objection. It is an attempt to think of mental states in terms of external matter. Chemical elements can unite so as to form a new body, but experience gives us no reason to believe that mental chemistry is possible, nor does reflection even show that such a notion is intelligible.[5]

4. The Herbartian doctrine of the dependence of feeling and volition upon ideas is not generally accepted by modern psychologists.

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[1] *Herbart and the Herbartians*, p. 26.
[2] *Outlines of Pedagogics*. Van Liew's Trans., p. 61.
[3] *Cf.* James: *The Principles of Psychology*, Vol. I, p. 162.
[4] *Ibid.*, Vol. I, p. 655; Allin, *Ueber das Grundprincip der Association*.
[5] *Cf.* James: *The Principles of Psychology*, Vol. I, p. 158.

In its practical application it is apt to overlook the immense importance for the pupil of the cultivation of right habits, the growth of which may be wholly independent of any ideas he may possess concerning them. As Aristotle long ago maintained in opposition to Socrates, the virtuous life does not altogether depend upon knowledge, but in a large degree upon habituation to right modes of life, which unconsciously leads to the development of moral character. This relation of the elements of the psychical life is also at variance with the generally accepted fact that men of thought are necessarily men of action, and that the exclusive cultivation of the intellect may lead to a paralysis of the will, as is illustrated in men of the Hamlet type. So, too, intellectual culture may produce an atrophy of the emotional life, as Darwin tells us was true in his case.

5. As a system of practical philosophy for the teacher, Herbartianism does not sufficiently take into account the importance of the physiological conditions of mental growth, nor help us to understand the different stages through which the child passes in the course of his development. According to Herbartian principles, the ideal education is that in which the knowledge acquired is properly related to that already possessed. But it is not easy to see why, according to this plan, an individual might not be taken at any time of life, and by means of a properly adjusted course of instruction be developed in any direction the teacher might choose. If all development depends upon the reception and assimilation of ideas, there would seem to be no limit to the power of education, and the process might take place at any age. But this is not the case. Physiological conditions may offer an insuperable objection at one time of life to an education that would have been a comparatively simple matter at another. A course of instruction has to be adapted not only to the knowledge of the pupil, but also to his stage of mental and physical development. As Dr. Lukens says: "Each subject has a more or less pronounced 'nascent period,' when interest in and physical ability to learn it culminate. The periods of maximal physical growth are not periods for severe mental discipline. The mind and the body both grow by fits and starts."[1] Hence the advantage of a genetic view of the mind over one that simply affords a glimpse of a cross-section of the stream of mental life. The teacher needs to know something about the stages of mental growth. In this matter the philosophy of Herbart can give us little aid except in the principle of apperception.

If, then, our examination of the Herbartian psychology does not appear to warrant us to conclude that the impossibility of formal education has been established, how will this doctrine fare at the hands of physiological psychology, which is to a greater or less extent adopted by modern psychologists? Perhaps it is desirable to consider briefly in the first place what this science has to say upon the question of mental activities. According to its teachings we are at liberty to dispense with a belief in the existence of unconscious ideas. Each psychical process is occasioned by an excitation of some brain area. When this neural excitation ceases, its mental correlate also goes out of existence, but one similar to it can at any time be produced by a like excitation of the same brain cells. This excitation is all the more likely to occur again owing to the fact that any series of cells that have acted together on occasion have a tendency to repeat the same movement. Hence a psychical process may be occasioned not only by a stimulus from the sense organ as at first, but also by an internal stimulus from some other brain center. Therefore the more relations an idea has with other ideas, that is, in physical terms, the more con-

[1] *Educational Review*, p. 119.

nections the brain cells that are concerned with its production have with other brain cells, the more frequently will such an idea occur, and the more likely is it to form a stable part of the individual's thought. All that is explained, therefore, by the Herbartian principle of apperception, may as readily find its explanation in the nature of the physical basis of consciousness, without necessitating our acceptance of a belief in the impossibility of formal education.

What, then, will formal education mean from this latter standpoint? Perhaps it is necessary to analyze a little more closely the meaning of this term. While the expression has been used somewhat vaguely in pedagogical literature, I think it is generally assumed to imply the two following notions: first, that mental power can be developed by mental exercises irrespective of the knowledge that is obtained; and, secondly, that the power that is generated by means of these mental gymnastics may be used in any other sphere of intellectual labor. Now, as to the first point, since all mental states are conditioned by brain states, it seems to be evident that any increase of mental power that can be produced by discipline, will be due to the greater effectiveness of the brain and nervous system. That there is the possibility of development in this direction appears to be an established fact. Neurologists tell us that the brain and nervous system contain probably 3,000 million cells.[1] While the number of these is not increased after birth, investigations have shown that there is a development of the fibres up to 33 years of age; for a considerable part of the cells remain mere developed granules, apparently of no value to the individual, simply the latent possibilities of unrealized power. In this connection Professor Donaldson says: "For the cells continually appearing in the developing cortex no other source is known than the nuclei or granules found there in its earliest stages. These elements are metamorphosed neuroblasts which have shrunken to a volume less than that which they had at first, and which remain small until, in the subsequent process of enlargement necessary for their full development, they expand into well-marked cells. Elements intermediate between these granules and the fully developed cells are always found, even in mature brains, and, therefore, it is inferred that the latter are derived from the former. The appearances there also lead to the conclusions that many elements stop short of complete development, that the number of elements which might possibly develop in any given case is far beyond the number that actually does so, and that the characteristic appearance of the cortex in the various localities depends in a measure on the expansion of dissimilar layers of the primitive granules."[2]

If, then, mental exercises aid the development of the brain, formal education must, to some extent at least, be a fact. Just what effect study has upon brain development has not yet been fully established, but there are indications that it assists this process. Laura Bridgman's case[3] is cited as an instance of this. In the examination of her brain, Professor Donaldson found "that those parts of the cortex which, according to the current view, were to be associated with the defective sense-organs, were also particularly thin. The cause of this thinness was found to be due, at least in part, to the small size of the nerve cells there present. Not only were the large and medium-sized nerve cells smaller, but the impression made on the observer was that they were also less numerous than in the normal cortex." Apart from

[1] Donaldson: *The Growth of the Brain*, p. 159.
[2] Donaldson: *The Growth of the Brain*, p. 238.
[3] Reported by Donaldson in *Am. Jour. of Psychology*, Vol. III, No. 3; Vol. IV, Nos. 2 and 4. *Cf.* Halleck: *Education of the Central Nervous System*, p. 46.

this evidence, it can hardly be doubted that the exercise of the brain, and the increased flow of blood which it causes, will aid in the development of the cells and of their connections with other brain centers, just as physical exercises have a like beneficial effect upon the other parts of the physical system.

It may, therefore, be safely concluded that mental exercises assist in the development of brain power. How far this is of service in other kinds of work than that in which it was produced, is of course another question. It would appear not to be of such general application as to warrant the supposition that this stored-up energy can be expended in any form of mental activity.[1] The development of the brain centers for the various senses would evidently be of service only for the production of sense images belonging to the senses with which they are concerned and the corresponding motor reactions. Further, the separate development of the main divisions of the central nervous system, the afferent fibres, the central connections, and the motor nerves, would evidently produce very different psychical results. The growth of the associative fibres, upon which doubtless the association of ideas depends, must lead to the development of the intellectual type of character, which, in extreme cases, gives us men in whom "the native hue of resolution is sicklied over with the pale cast of thought." The over-cultivation of the sensory portion of the system on the other hand might lead to a life of sensuality, while the development of the motor regions would give us men of action.[2] Hence an all-round education of the central nervous system cannot be secured from any circumscribed series of exercises. At the same time it seems probable that the increased development of any part of the system must prove beneficial to the whole, especially in the development of associative fires, which bring all parts of the system into connection and therefore increase its effectiveness.

It seems, then, that formal education is to some extent a reality, according to the teachings of physiological psychology, both in the permanence of the acquisition derived from studies apart from their knowledge value, and also in the general application of this increased power for other forms of mental activity. Intellectual training stands on very much the same basis as physical training. A man's physical nature can be trained by doing useful work or the exercises of the gymnasium, which have no value whatever except their effect upon the physical system of the performer. So one's brain system can be trained in studies that have a knowledge value for the individual, but also in those that have none. In both cases, of course, it is best that the gymnastics should be secured in the performance of useful work, as in this case two ends are gained at the same time; but as, perhaps, all kinds of work only partially develop one's physical powers, so that it is necessary to have recourse to gymnastics to complete the physical training, in the same way it may be necessary to have special exercises to develop particular brain functions, though such exercises have no knowledge value in themselves. In fact, it may be found that many physical exercises that usually are not classed as mental training, have no less value for the training of the mind than the study of the classics or the sciences, that manual labor, foot-ball, and other forms of athletics are just as potent factors in intellectual development as many subjects of the curriculum; as they not only train the muscular system, but also the brain cells by which the muscles are controlled.

While, therefore, physiological psychology does not appear to justify the conclusion that formal education is either a "myth" or a "fic-

[1] *Cf.* Hinsdale: The *dogma of formal discipline. Educational Review*, Sept., 1894.
[2] *Cf.* Donaldson: *The Growth of the Brain*, p. 342.

tion," the writer of this paper does not wish to place himself on record as advocating exclusive attention to formal studies, without regard to their knowledge value. On the other hand he is utterly opposed to such a procedure, and believes that the disciplinary value of studies should be sought, as far as possible, in those that have a value on account of their content. At the same time we should not close our eyes to the two-fold value of all instruction through our allegiance to an antiquated form of psychology that denies such a possibility. While we must ever be grateful for the immense contribution that Herbart and his followers have made to modern pedagogy, it is surely much better for us to translate those fruitful principles, such as apperception, which they have taught into terms of our modern psychology, which is capable of doing justice not only to them but also to many others of which Herbartianism, on account of its manifest limitations, can take no cognizance.

LITERATURE.

The Case of Wagner. By FRIEDRICH NEITZSCHE. Tr. by Thomas Common. Introduction by Alexander Tille. New York; Macmillan and Co., 1896.

Thus Spake Zarathustra. By FRIEDRICH NEITZSCHE. Tr. by Alexander Tille. New York; The Macmillan Company, 1896.

A Genealogy of Morals. By FRIEDRICH NEITZSCHE. Tr. by William H. Hausemann. Introduction by Alexander Tille. New York; The Macmillan Company, 1897.

These three volumes are respectively Vols. XI, VIII, and X of The Macmillan Company's English edition of the complete works of Friedrich Neitzsche, to be issued in eleven volumes. The editor is Alexander Tille, Ph. D., Lecturer at the University of Glasgow. The text is that of the final German edition (Leipzig: E. G. Naumann).

There is no more interesting figure in modern philosophy than Neitzsche. Whether viewed as a prophet or as mountebank he commands attention. The enormous influence of his works, not only in Germany, but also in Austria, Holland, France, Scandinavia, and Russia, and the rapidly growing literature which is interpreting and developing his thought, indicates his power over those who deem him a prophet; while Max Nordau's eighty-five pages of unsympathetic, not to say scurrilous, criticism are equally convincing of his ability to arouse opposition and contempt. It is, therefore, a matter of congratulation that his works are being worthily presented to the English-speaking world.

As the man is not less interesting than his writings, and as little known, a word about his life is demanded.

He boasts of gentle ancestry — les Neitzki — a noble Polish family, certain members of which found it advisable to leave their native land, about two hundred years ago on account of participation in some political intrigue. They settled in Germany and one of their descendants with a germanised name (Neitzsche), a protestant pastor in a small village in Saxony, was the father of the philosopher. The latter was born in 1844, October fifteenth. He early showed a "rich but contradictory nature." He was gifted with delicacy of perception and fine sensibility, but had a violent will. A passion for poetry and music and a taste for dialectics and analysis marked him very early. "In him were the savant, the artist and the philosopher;" but the three characters never consented to live on terms of peace.

Neitzsche was educated in the famous Schulpforta and at the Universities of Bonn and Leipzig. He was "destined" for the ministry, but his intentions melted like wax under the influence of Schopenhauer whom he read during the first year of his university life. He turned his attention to philology, bringing to his study of Greek literature immense enthusiam and a sympathetic intelligence.

In 1868, before taking his degree, he was called to the chair of classical philology in the University of Bâle. He was then twenty-four years old. Here he remained until compelled, by ill-health, to resign his position in 1879. "Two hundred days in the year," he says, "were pure pain." He by no means, however, "ceased from his labors:" a

new book appeared nearly every year until 1888, when he became hopelessly insane. Since then he has lived a merely vegetative life, cared for by relatives.

As already indicated Neitzsche's first great teacher was Schopenhauer. Wagner was the second. Under the spell of these two masters, he produced, in 1871, his first important work, "Die Geburt der Tragödie." Schopenhauer and Wagner are used to solve the problem of the origin of tragedy. It is the combined product of Dionysius, genius of creation and of destruction, source of intoxication and of music,—the "will-to-live"—and Apollo, genius of beautiful personality, source of poetry—the art instinct.

The essential pleasure of the tragedy consists in contemplation, at once, of the grandeur of the individual life and the might of universal life which swallows up, after having created, the individual life.

Neitzsche did not, however, remain long a disciple of Schopenhauer and Wagner. Though nominally the apostasy did not take place until late in his career, it is evident that he had cut loose from them much earlier. As early as 1877, he had begun to discover that both Schopenhauer and Wagner were antipodal to him: "they both deny life." He confesses to a long combat with himself against Wagner and Schopenhauer—diseases against which he had to defend himself. Henceforth he occupies a position quite independent of them. And he opposes them with scorn and bitterness. Not asceticism, denial of life, which is the essence of Schopenhauerism and Wagnerism; but affirmation of the will, the instinct, to live is his thesis. It is worthy of notice that this final phase of Neitzsche's philosophy is coincident with his physical decline. With the waning strength and weakening hold the upon life comes his passionate and, attimes, incoherent affirmation of life and power. He becomes a kind of modern Lucifer storming the battlements of heaven—but single-handed and with weapons that merely bruise his own hands.

Nevertheless there is a dominant idea in all of Neitzsche's later writings: it is that of morality. He has purgedhis philosophy of ontological and epistemological impedimenta—they are but the outworn trappings of defunct systems—and views the universe solely as a moral problem. But there is little of what we are accustomed to think of as morality to be found in his moral philosophy. All things are to be tried by the standard of physiology—art, culture, religion—everything.

Ideal standards, which are as vague as variable, must be thrown down and the immutable standard of physiology must be set up universally. Whatever tends to physiological *décadence* is immoral: whatever tends to physiological ascent is moral. Thus history and present experience are to be tested.

It is easy to see that such a standard is in apparent opposition to the standard of utilitarianism. "The greatest good of the greatest number" does not harmonize with the unbridled sway of natural selection. Prof. Huxley's ethical code demands the combatting of the cosmic process as the condition of social progress, which consists in "the fitting of as many as possible to survive." And this not far from being the creed of ethics and sociology throughout Christendom.

The old idea of a "moral order of peace" has necessarily perished before the blighting breath of modern evolutionism. Progress results not from passive development, but from a fiercely competitive struggle. In view of this concept, it was inevitable that the question should be raised: What becomes of our concept of morality with its altruistic, good-of-the-many, pity-for-the-weak bias? Is man really outside and above the cosmic order, wherein reckless indifference to the good-of-the-many runs riot? Is the good-of-the-many, after all, the object

of moral solicitude? or is it not rather the preservation of the well-constituted to the end that the species may reach its consummation in a stronger, bolder, freer, finer, more halcyonic life? Not *humanity* but the "*uebermensch*," as the end of the cosmic process! It was inevitable that the question should be asked.

It is cause for congratulation that the question should have been formulated and an answer attempted by so subtle and powerful an intellect as that of Friedrich Neitzsche. For he states the question with uncompromising — nay brutal — frankness, and with a clearness that leaves no one in doubt as to the real issue. Others have approached the problem only to shrink back in confusion or to venture timid and apologetic suggestions; but Neitzsche has shouted defiance to the whole altruistic, good-of-the-many, *Christain* morality, and proclaims, in a pæan of victory, that morality is dead — "good and evil" are superstitions — there is no "good" but power — the will-to-live and the will-to-power; and no bad but weakness, devitalization and weariness of life.

This is the germ of his philosophy and one will look in vain through all his voluminous works for an idea which is not rooted in this fundamental concept. Everywhere it is exploited with wealth of learning, penetrating insight, rhetorical splendor, immense breadth of view and passionate enthusiasm.

Whatever may be the value of this contribution in the solution of the ethical problem, the apologists of the conventional ethic cannot complain that the opposite position has not been presented with incomparable clearness, sincerity and force.

The three books before us present varying phases of this germinal idea.

The *Case of Wagner* consists of four distinct parts: The Case of Wagner; Nietzsche contra Wagner (being passages selected from the author's older writing to show that "Richard Wagner and myself are antipodes"); The Twilight of the Idols (a collection of satirical pieces); and The Antichrist. (This last is the first of a series of four essays, which were to constitute his masterpiece, Der Wille zur Macht. Versuch einer Umwerthung aller Werthe. The other three were never written.)

In the first two essays he deals summarily with Wagner as the apostle of fatigue, denial of life, Nihilism, in the field of art. Just as he conceives Euripides as the last *gasp* of the old, rich, puissant Hellenism, so he conceives Wagner as the consummation of the terrible disease of modernism. Schopenhauer is comparatively harmless; the subtle poison of his Nihilistic philosophy enters the veins only of the elect few. But Wagner, the artist of unparalleled subtlety, force and persuasiveness, is a far-reaching and deadly disease. The consummation of his corruption is reached in Parsifal, in which the ascetic ideal finds its perfect and most dangerously persuasive representation.

In these essays the changes are rung upon *décadence* with "damnable iteration." (It is not difficult to perceive where Nordau *may* have got his idea of "degeneration" in art.)

The essay, Antichrist, is an attempt at an evaluation of Christianity. Needless to say that the author considers it the most deadly blight that ever has fallen upon the race — "the one immortal blemish of mankind." Why? Because of renunciation and pity.

"The weak and ill-constituted shall perish: first principle of *our* charity. And people shall help them to do so.

"What is more injurious than any crime? — Practical sympathy for all the ill-constituted and weak: — Christianity."

Thus Spake Zarathustra is an earlier work than the preceding. It

is an allegorical prose poem, full of satire, criticism and moral penetration, and cast in the form of brief chapters consisting of polished and biting aphorisms—"laughing, singing, dancing strophes." The only philosophic idea in this work not found in most of the others is that of eternal recurrence—apparently adopted from Brahminism. The leading motive of the poem is the *uebermensch*, "the higher intellectual and bodily development of the human race as the great goal of humanity, and the center of ethical obligations."

The last named volume, *A Genealogy of Morals*, contains, besides the three essays which constitute that work, Neitzsche's scattered poems—"that part of his poetry which he did not choose to incorporate in any of his larger writings." The three essays are respectively: "Good and Evil;" "Good and Bad;" "Guilt, Bad Conscience," and the like; What do Ascetic Ideals mean? The first essay is "devoted to the two mutually exclusive antitheses, 'Good and Evil' and 'Good and Bad.'" These two valuations, he holds, are quite distinct in origin; the former representing the moral estimate of the strong, the well-constituted, the masterful, the noble; the latter, that of the weak, the ill-constituted, the servile. "Master-morality" and "slave morality!" The three articles in the creed of "master-morality" are: Good—"all that increases the feeling of power, will-to-power, power itself in man;" evil—"all that proceeds from weakness;" happiness—"the feeling that power increases, that a resistance is overcome." Reversely, the "slave-morality:" poverty, humility, dependence are good; pride, strength, will-to-power and joy-in-power are bad; happiness is nirvana. "Master-morality" is born of overflowing vitality, the vehemence and integrity of the race preservative instincts; "slave morality" is born of weakness, weariness of life, resentment—against the fortunate and against life itself. The moral history of the world is the history of these two antipathetical valuations.

The origin of "bad conscience" is discussed in the second essay in the series. "Bad conscience" came when man was subjected to "that most radical of all changes" he has ever experienced—"the change which he experienced when he found himself forever locked within the ban of society and peace." Instinct could no longer be his guide; he must depend upon reason,—his "meanest and least reliable organ." All his instincts, thus prevented from immediate externalization in conduct, are "turned against himself." "Enmity, cruelty, the pleasures of persecution, of surprise, of change, of destruction—imagine all these turning against the owners of such instincts; *this* is the origin of "bad conscience." Like a caged beast he lacerated himself. This morbidity of self-torture is the most dangerous disease to which man has been subjected. Out of it proceeds the concept of sin with all its dismal and paralyzing consequences.

The third essay is an attempt to evaluate ascetic ideals. "The ascetic ideals are identical with the ideals of the slave-morality"—poverty, humility, chastity. Economic ruin and disappearance of life is their inevitable consequence.

Appraisement of Nietzsche's moral theories is premature. They cannot be brushed aside as the ravings of a madman. Nietzsche was no madman when these theories took shape in his mind. And, besides, there are too many moralists of guaranteed sanity who profess a leaning towards the practical desirability of such a standard as he proclaims. (*E. g.* F. H. Bradley.)

But it is competent to point out that Nietzsche is about as unscientific as possible. Witness the following from the *Foreword* to *A Genealogy of Morals*: "But with the same necessity with which a tree will bear its fruits, our thoughts will grow from out ourselves." A fine and im-

perative declaration of faith for the artist — but for the philosopher ? and for the *scientific* historian of morals ? How far is such thinking removed from "the intellectual cobweb-spinning in the mode of Spinoza and Hegel ?"

Again, his assumption that sympathy is not only a symptom of decadence, but also its most efficient cause, is by no means a closed question as yet. Science has yet to make her report upon the matter. And would the followers of Nietzsche hold that the race is on the brink of destruction because medical science has reclaimed *him* from the mad-house and restored him — a helpless wreck — to the sister who ministers to him in self-effacing sympathy ? And are they ready to condemn the world for pitying instead of destroying this "weak and ill-constituted" one ? And, after all, sympathy is just as much an instinct as cruelty or lust. Nietzsche has no right to exclude it from his pantheon of the "unconscious."

Such examples might be multiplied *ad infinitum*, but they would be idle. Nietzsche must be judged by his intentions, not by his scientific attainments. W. S. S.

La Pubertà studiata nell' uomo e nella donna in rapporto all' anthropologia, alla psichiatria, all a pedagogiaed all a sociologia. Dal Dottor ANTONIO MARRO, Torino, 1897. XI, 507 pp. 8 vo.

Dr. Marro is Docent in Psychiatry at the University of Turin, and his earlier (1887) work on the "Characters of Delinquents" marked him out as one of the ablest and most conscientious of the Italian criminologists. The present volume (announced in 1895) has appeared serially in the *Annali di Freniatria*, of which Dr. Marro is editor, and is, altogether, the most careful and ambitious treatment of the subject of puberty in man and in women we possess as yet, occupying a position quite apart from such recent treatises as those of Biérent and others, which are neither the result of so extensive personal investigations, nor are marked by such wide reading and critical appreciation of data of all sorts and all values.

The author recognizes in the development and extension of the pubertal crisis and pubertal phenomena, three periods, *viz.*, (1) Preparatory period, (2) Period of accelerated growth, (3) Period of completion.

The first period is marked by an arrest of growth in stature, as if nature wished to gather her strength for the period to follow; by the first hint of the greater development of the genital organs (internal and external), the first appearance of hair on the pubic region; by a certain improvement of the higher psychic qualities (attention, reflexion, judgment, etc.); and by an improvement of conduct as compared with preceding years in the social relations of the youth.

The second period is one of accelerated growth in which stature and vital capacity develop most rapidly, and the sexual (physical) characteristics become apparent — a most critical epoch, when it is possible for the organic and functional integrity of the individual to be more or less seriously compromised. The rapid increase in stature, weight, etc., seems to bring about a temporary weakening of the powers of resistance in the physical and moral powers of the adolescent — exaggerated activity of growth apparently entails arrest of functional perfection. So this period comes to be characterized by a species of psychic weakness manifesting itself in instability and impropriety of conduct, and, generally, the time of the development of puberty is the period at which the individual presents less power of physical resistance (chlorosis and nervous troubles in women; diseases of the respiratory and digestive tracts in men have a special predilection for

this period, and are marked by a greater morbidity); this functional deficiency of the adolescent is the natural result of the exaggerated proportion in the organism of young, imperfect elements during the unusual increase in growth of the skeleton and of the essential and secondary sexual organs. The psychic state which marks this period may be characterized in one word as the "unforeseen"—from the sphere of the unconscious the individual receives impulses to action, which reflexion and judgment have not yet acquired the power to dominate and to regulate; hence many inadvised actions which stand out in contrast with the habits and previously indicated character of the youth and cannot be held to designate his future nature and destiny.

It is only in the third pubertal period that the character of youths takes on permanence, definite form, and consistency, and the work of differentiating the individual from other individuals matures, and nature, having accomplished the task of assimilating the greatest amount of material, now proceeds to elaborate and to specialize—and a new being is born, with new passions, new feelings, new ideals. There is no genius that does not at this age shed forth some ray of its future splendor—the individual issues from this period transformed, the chrysalis becomes the butterfly. To woman come elegance and regularity of form, roundness of limbs, beauty of face and voice; apprehension loses itself in repose, and the consciousness of her mission in the world dawns upon her, as well as the full appreciation of her charms and beauty and their significance to men; now everything wakens and all is animation, the eyes acquire a splendor of expression, movements become graceful and charming—freshness, nerve, and vivacity touch everything.

To the man come calm and consistency, individuality and lasting transformation—the new passions and activities of emulation, love of praise, pride of self-distinction, care for the regard and favor of the other sex, zeal for pleasures. With the feeling of independence and the perfecting of individualization is developed in the youth at the same time the faculty of extrinsecrating their values—altruism, the tendency to sacrifice himself for a person or an idea, do not arise in him until the pubertal development has appeared.

In twenty chapters the author discusses, with ample illustration of cases and of data: The pubertal epoch, physiological changes, sexual differences in character, periods of the pubertal crisis, pubertal epoch in degenerates, nervous and mental disturbances at puberty, psychoses of puberty, effects of puberty and of anomalies of the genital organs, physiological conditions of degenerative manifestations, causes of degeneration, effects of age of parents on their children, factors of degeneration, physical hygiene of youth, hygiene of intelligence, moral hygiene, the struggle against degenerative manifestations and the propylaxis of degeneration, therapy of the degenerative manifestations of the pubertal epoch, woman's character and mission in the world, sexual and social hygiene. Nowhere else can be found so full and fair a treatment of all these questions, and of many others more or less related to pubertal topics.

Among the many interesting *dicta* and remarks of general character in the volume the following may be noted: The instinct of sensuality precedes the true amorous sexual tendency; the brute long prevails before the man; lubricity tickles the senses before love wakes (p. 86). In infancy and childhood, as a rule, in both sexes the forms of mental alteration observed are arrests of development (p. 100). With the female sex this perturbation of the pubertal epoch continues during all their sexual activity (p. 205). Seminal

losses occur normally in all youths, especially during sleep, and mark the arrival of sexual activity (p. 207). Adolescents (youths), are, as a rule, fantastic, little given to reflexion, greedy for pleasures and diversions, intolerant of discipline, averse to fixed occupation, little suited to fatigue (p. 217). The notorious general predilection of women for soldiers can be explained only as an atavistic residuum of the preference accorded to the victor in the struggle for love (p. 221). Precocious love develops an equally precocious instinct of cruelty; with the first sexual embraces this instinct of cruelty breaks forth (p. 223). In woman the tendency to attract the attention of the man, has taken the place of impulsion; in her the exterior mechanism of amorous emotion is coquetry, in man aggressiveness (p. 228). The prime predisposing conditions of crime are closely related to the natural condition of the youth (p. 244). At the time of puberty the most common poisoning to which youths are exposed is alcoholism (p. 265).

Hunger, cold, excessive labor, improper *milieu*, physical and moral abjection constitute the factors of the complex state termed poverty (miseria) (p. 270). Mental fatigue is relative to persons and habits (p. 276). The emotion of anger is not as dangerous in youth as at other times of life (p. 279). The first hygienic cure for youth has to do with alimentation (p. 294). After alimentation look to respiration (p. 296). Obscene books, talk, pictures, spectacles, plays, should be forbidden to the young (p. 299). The meeting of the sexes during work-hours, no less than during study-hours, is desirable: their separation is favorable to the development of anti-natural tendencies and antagonistic to the best normal moral development of both girls and boys, physically and intellectually (p. 301). During the pubertal period all excessive labor ought to be avoided (p. 303). Rich and poor, high and low, all feel the influence of the pubertal crisis with its exigencies; for all there is needed a sort of rest that shall permit the youth to equilibrate himself well, to proceed afterwards with greater freedom upon to the path marked out for him (p. 306). The first benefit of gymnastic games, which represent the healthiest and most educative diversion, is to put the young in contact with each other (p. 307). From the point of view of physical hygiene and from that of morals also, we can look with favor on the gain that the bicycle is making at the expense of the dance; and upon the time that each of them subtracts from idleness and novel-reading (p. 313). The action of swimming upon the muscular system is paralleled by that of no other gymnastic exercise — scarcely a muscle remains inert (p. 314). Swimming is the one exercise in which women succeed in ridding themselves the most of the inconvenience of clothes, etc. (p. 317). Solitude and taciturnity are, as a rule, harmful to youth; whims, anomalies of character, immoral and anti-social tendencies can find no more propitious ground for cultivation and protection (p. 318). Continued, sustained labor is the characteristic of civilized man (p. 354). Where sympathy is in woman activity is in man (p. 358). Play is a form of work not less pleasing to barbarians than to degenerates (p. 361). Youth needs to be habituated to struggle, the essential condition of life (p. 370). In puberty we have the keenest and the most potent stimulus for the development of social virtues—until the rise of sexual instinct, the birth of inclination for the other sex, there is no potent stimulus, save egoism, to guide his actions (p. 376). The first condition for the development of a high moral level is an exact notion of one's own duties and rights (p. 377).

In the actions of the most sensible and honestest man criminal and

lunatic tendencies do not fail at times to make a little headway—*quandoque dormitat bonus Homerus.* Seven times a day the wise man falls, and falls no less against society than against himself (p. 386). Temperance societies are real crusades against the extension of degeneracy (p. 388). The facts by which one is to judge of the reformation of youth are disciplinability, sociability, activity, character (p. 405). The appearance of moral pain, like that of physical pain, marks the first manifestation of a dissolutive process which threatens the organization, of a dissolutive movement in the psychic organism, which, equally with physical pain, may compromise life in general (p. 410). Whilst in woman the fear-psychoses continue to maintain themselves in about the same proportion during all the epochs of her life, almost the totality of them manifest themselves in man in childhood and during the first periods of puberty (p. 424). What distinguishes precisely the civilized man from the savage is the richness of cerebral reflexes called forth by the external impressions, whence his intellectual life comes to be increased at the expense of his emotional life, with profit to the individual, who is more subject to exhaustion from emotional than from intellectual labor, and to the benefit of society, which from the cerebral labor of individuals gains the first condition of its stability (p. 426). Work is a good disciplinarian—quarrels among boys who are busy are far less frequent than among those who are left idle (p. 428). The secret of a good education lies in favoring the development of the various reflexes in an orderly manner, without allowing the ones to prevail too much over the others, but calling all regularly into action (p. 431). Fear is only the sudden and abrupt appearing of pain symptoms (p. 434). The first benefit of the religious sentiment is the auto-suggestion of faith (p. 435). A good part of the phrenoses of the age of puberty are due to conditions of exhaustion, to excess of mental or physical labor, and to uranism (p. 440). Work is the first means of moral therapeutics (p. 447). The atavistic tendency to inertia, the aversion for sustained labor, which, in man, generates idleness, vagabondage, mendicancy, and gambling, reveals itself in woman in prostitution better than elsewhere (p. 455). The woman who renounces maternity to remain simply the lover is like the man who stops at mere preservation without production of useful labor (p. 456). Prostitution is the great anti-social crime of woman (p. 456). There is no doubt that from degenerate individuals are born not only healthy or practically healthy children, but even geniuses (p. 499). There are certainly two kinds of geniuses, the healthy and the sickly—about Franklin, Garibaldi, Lister, Pasteur, Washington, there are no marks of degeneration, they could fall ill like ordinary persons—these beneficent geniuses are the providence of nations (p. 500).

Marro's book has a strongly sociological trend, and the author is in sympathy with all rational efforts to combat the elements of degeneracy in the world. It is the duty of every individual member of society to produce normally more than he consumes, so as not to become in any way a burden or a parasite upon his fellows; every work performed in the world ought to satisfy two requisites, benefit the individual executing it and also the society in which he is included; criminality consists in producing works that advantage the individual but injure society, and the damage which the latter suffers is the measure of increase of the gravity of the offense. In modern society there exist certain professions which, in their very nature, are essentially criminal, and criminality invades even the honest professions. Marro has little good to say of politics. Politics is essentially a dishonest, immoral profession, consisting in reaping advantage from all that can

profit the opinion, or party, one is desirous of sustaining, and from all that can injure the other side. Every political party that seeks to injure another except in self-defence is essentially criminal. Politics is especially dangerous to young men, wrecking their moral character and shattering the *ensemble* of their social righteousness. Gambling, whether carried on at the stock exchange or the gaming-table, is equally criminal—the gambler is one with the thief in advantaging himself at the expense of others, without adding at all to the social patrimony. Multiplication of sects, religious and political societies, reaches often an absurd, if not a criminal limit; anarchy, unproductive claustration, etc., can soon become criminal, as they begin by being anti-social.

There is no clear line of separation between normals and degenerates; there are no clear characteristics of demarcation between the honest and the delinquents, the sane and the insane — the hereditary defects, which give place to degenerative manifestations in the children are found among the normal as well as among the abnormal; there is only a difference of gradation, as, in the degenerative manifestations themselves, there is likewise a simple difference of degree. In society there are no classes, nor even families in which, sooner or later, degenerative tendencies do not manifest themselves; but the presence of degenerative characteristics does not necessarily imply alteration of function, nor does it necessarily imply delinquency or lunacy, but simple disposition. The natural law of the correlation of organs with functions makes it necessary that these degenerative signs should always have a value, but the norm and the determination of this value depends upon the concurrence of other considerations: "The *torus palatinus*, long arms, powerful hands, do not of themselves serve to distinguish the delinquent from the normal man, since they are found with notable frequency in normal individuals. But such signs may characterize the energetic criminal, which brings to the perpetration of his offences uncommon vigor, perseverance and methods, and distinguish him from the weak criminal in whom we find rather microcephaly, assymmetry, deformity and other characters indicating weakness or disease rather than energy or prepotency of action (p.382)." In the whole population, however, degenerative manifestations are rather rare and scattered everywhere. It is the business of society to prevent the tendency from becoming a powerful factor positive in its criminal influence, and to prevent the propagation by suggestion, contact with criminals and degenerates, theaters, novels, pictures, newspapers, etc., of criminal and degenerative elements in portions of society where the tendencies to evil have long remained in innocuous desuetude.

A. F. CHAMBERLAIN.

WARD, LESTER F. *Outlines of Sociology.* The MacMillan Company, New York, 1898.

Under this title Prof. Ward has republished the series of articles which has been appearing in the American Journal of Sociology since July, 1895. The first half of the work, entitled "Social Philosophy," treats mainly of the relations of sociology to its cognate sciences, cosmology, biology and anthropology. The ideas here expressed are amplifications of scattered thoughts found here and there in Prof. Ward's previous writings. The aim of the first part of the book is, in the language of the author, to serve "as the frame and setting of a pen sketch embodied in Part II." These early chapters are intended as well "to show what sociology is not."

The constructive portion of the book, "Social Science," contains a

philosophic recast of the author's sociological system. With the exception of a few illustrations, the entire subject matter is found in "Dynamic Sociology" and "Psychic Factors in Civilization." It consists quite largely of quotations from these works. The aim of the author in writing was to furnish "clear explanations and definite delimitations of the field." What he has succeeded in doing has been to furnish an admirable introduction to his own system of sociology. The work shows little familiarity or sympathy with recent publications dealing with the same general line of thought. Spencer and Kidd are the only writers on social topics referred to at any length, although there are incidental references to Patten and Vincent. To those acquainted with the value and originality of Prof. Ward's contributions to the theory of society, this book must prove something of a disappointment.

H. D. S.

HINSDALE, B. A. *Horace Mann and the Common School Revival in the United States.* The Great Educator Series. Edited by Nicholas Murray Butler. Charles Scribner's Sons. New York, 1898.

Prof. Hinsdale devotes the first seventy-five pages of the book to an introductory sketch of American educational conditions and reformers previous to 1837. While Boone and Martin cover somewhat the same ground, the summary before us is on the whole much more satisfactory. It is free from verbiage, and the relation of events is easily followed. Two chapters, the third and tenth, are given to the Non-educational Activities of Mann. The larger portion of the work, chapters IV to X, deals with the common-school revival in Massachusetts. The different phases of this great movement are presented with admirable clearness and impartiality. Prof. Hinsdale, while not lacking in sympathy, has avoided that common vice of biographers—hero worship, in his discussion of the controversy with the Boston School masters. His digest of Mann's twelve reports as secretary of the Board of Education fills a long felt want. Perhaps the ablest and most readable chapter is that devoted to "Horace Mann's Character and Work." While recognizing the simple greatness of the man, it is entirely free from rhetoric or exaggeration.

The discussion of the common-school revival in the other States is brief, vague and unsatisfactory. It gives the impression that the only important impetus toward common-school reconstruction came from New England and does injustice to early movements in New York, Pennsylvania and Ohio. It may be worth noting that strong progressive legislation in New York antedated that of Massachusetts by twenty years; while the fight for common schools in Pennsylvania was won three years before the appointment of Horace Mann.

While the book is not and makes no pretence of being a great biography, it is a valuable contribution to the scanty literature of American educational history, and is up to the high standard hitherto maintained by the biographies of this series. For the average reader in this field, no more valuable book has been published.

University of Iowa, Studies in Psychology: Edited by GEORGE T. W. PATRICK, PH. D., and J. ALLEN GILBERT, PH. D., Vol. I, pp. 92. University of Iowa, Iowa City, 1897.

These studies are reports of careful scientific researches, and contain contributions both direct and indirect to pedagogy. The first and longest paper is on researches upon school children and college students by Dr. Gilbert. Experiments have been made extending over the greater part of two academic years, and the subjects were school children from the ages of six to nineteen. Each individual was tested

in respect to pulse, pain threshold, strength of lift with the wrist, strength of lift with the arms, estimation of length by arm movement, estimation of length with the eye, lung capacity, weight, height, voluntary motor ability, fatigue. The data obtained were carefully studied and showed marked changes in the development of the child about the age at which change of growth occurs. The most marked effect being at about fourteen. "Mean variations remain comparatively regular for the two sexes until about the age of fourteen, and the change in variation is largely due to the change in growth coming at that year. Girls seem to complete largely their development a year or two previous to the time at which boys have just begun their most rapid period of development. In the pain threshold, arm lift, wrist lift, and lung capacity the girls have about reached their maximum at about fourteen, while at this age the boys begin to develop most rapidly; so that judging from the present series of tests compared with those taken at New Haven (in an earlier study by the same investigator) the statement might almost be risked that a girl has largely completed her physical development before the age of fourteen or fifteen."

Dr. Gilbert finds no such relation between weight and height and mental ability as has been claimed. On this point his results are negative, although if anything, they indicate that the taller and heavier the children, the duller they are instead of the opposite.

Other papers concern interesting studies on the effects of loss of sleep, and the effects of practice in reaction and discrimination. The former by Drs. Patrick and Gilbert, reports the results of physiological and psychological tests on three subjects during a period of abstinence from sleep lasting for 90 hours and is a very important contribution. Reviews of the experiments of Friedrich and Ebbinghaus on fatigue in school children, and on recent literature concerning right-handedness and left-handedness, complete the volume.

W. H. B.

The Great Ralston Health Club. Organized by EVERETT RALSTON. Published by the Martyn College Press Association, Washington, D. C., pp. 174.

We have turned over this and several more and larger volumes of this mystic order with growing mystification. The association claims millions of members in the United States, and is devoted to strength, longevity, cheerfulness, pure food and drink. It is a secret order, and sells many books to members at exorbitant prices. Statements about health are sought of each applicant for membership, and it cultivates "glame," a word invented to designate the mystic principle of life found by the epnomie founder in different proportions in different food. It is always printed in large capital letters; the school has a private laboratory of truth-seeking scientists; strives to produce a new race of men; has a creed of twelve articles; advocates Ralston baths, drinks, cooking; a Ralston physiology, anatomy, etc. Glame stirs the cells with life, rests from fatigue, gives personal magnetism, makes wheat the only perfect food, cures most diseases if not too far advanced, is found in milk, cheese, eggs, apples, nuts, fresh fish, some meats, and especially in red pepper. These constitute the chief Ralston foods, and nothing else must be eaten on Ralston day, which is the fourth day of each month. There is a lot of advice, mostly good, concerning bathing, toilet, rest and sleep; much physiology also respectable; much hygienic sermonizing and moralization, and an elaborate organization. All in all, the Ralston movement, so far as is apparent to an outsider, is a unique combination of quacking and pretense, used primarily for extracting money, and secondly, for

doing the most good, the leaders of the movement, working under evident limitation, are able to do. Who Ralston is, or was, if such a person ever existed, or even who President Webster Edgerly is, who seems to be now a guiding star, there is no intimation. The association is largely represented among the middle classes in some parts of the west, and is an interesting psychological and pedagogical phenomenon. The most utterly unscientific book is that on personal magnetism, for it revives many of the vagaries of Reichenbach and odic force, and suggests the crazy theory of "radiant neuricity," yet to "unite deep respiration with exercise No. 20 210 seconds," "fingers dead still," and the "eyelids as long as possible" may teach control. The command of magnetic influence is, as the author says, a "great study." Distinguished statesmen and their wives are patrons of or recommend Ralstonism, and other unknowns certify that, whereas, they were physical wrecks, it had made them new creatures.

Marriage Customs in Many Lands, by H. N. HUTCHINSON. D. Appleton and Co., N. Y., 1897. pp. 348.

These customs are described among twenty-four different peoples and the author has shown much diligence in collecting his material from many sources. The book is copiously illustrated and attractively bound.

Die Geschichte für Lehrerseminare, von W. HEINZE, Hanover and Berlin, 1898. pp. 280.

This history for normal schools is to be in three parts, of which this is the first. Its author is a normal principal who has specialized in history, and this volume is devoted chiefly to Greek and Roman history. Much stress is laid upon art culture and industry, and the early days of Christianity are briefly characterized, and many wood cuts of ancient monuments are appended.

MISCELLANEOUS.

We quote below a concise and very conservative statement of Professor E. B. Titchener, of Cornell, whose attainments and achievements in laboratory psychology are unsurpassed, from the current number of the *American Journal of Psychology*, upon the value of work in his department for teaching.

"Every mental process may be looked at in two ways, as existence or as function. Whether we can measure sensations, regarded as existences, has long been debated in experimental psychology; and the outcome of the debate is still to be expected. Of course a pressure sensation called forth by a 2-lb. weight is not analyzable into two pressure sensations of 1 lb. each; and the visual perception of a blood orange is not a fusion of the visual perceptions of three tangerines. The question is only whether such considerations are the alpha and omega of existential measurement. But while we may, for certain psychological ends, find it convenient to look at mental processes as existences, we *must* look at them as functions; and this, whether we are 'parallelists' or 'interactionists.' In the former case we have at least to say that the brains which now throw off these and these processes, as the correlate of their physiological functioning, are the brains that have survived in the struggle for existence; mental processes are thus at least indicative of organic function. In the latter we can find no reason for the existence of mental processes, save that they have themselves proved serviceable for organic survival in the course of evolution. The conception of mind as function is thus forced upon us. But function can be measured. If I can just see a black dot on a white ground at a distance of one foot, while my friend still just sees it a distance of three, then his brightness sensitivity is three times as great as mine. If I remember two-thirds of a mass of visual material, presented under standard conditions, and my friend remembers five-sixteenths, then our visual memories stand to each other in fidelity of reproduction as 32 to 15. If, using all my partial memories, I can recall five arguments of a given total, while my friend remembers eight, then the practical value of his memory is one and three-fifths as great as that of mine. All these cases are cases of measurements; but all are cases of the measurement of mental processes regarded as functions of the organism, not as mere existences. And it is here, in our belief, that the psychological laboratory begins without any question to be of service to the teacher. There is no doubt that we can measure mental function. The instances above given are crude and insufficiently qualified; but their principle is sound. We can measure span and fidelity of memory, quickness and accuracy of apprehension, range and direction of imagination, capacity of sustained attention; we can measure inventiveness, adaptiveness, observing power, cool-headedness, suggestibility, etc., etc. Measurements of all these functions may not have yet been made; they may not be the special functions which are of the chiefest interest just now to experimental psychologists. But such measurements can be made; and, when made, are of primary importance to the teacher."

To The Pedagogical Seminary.

At the twice-repeated invitation of the Editor I attempt to express in a brief letter a criticism of the discussions appearing in your pages.

It is easy to ask questions, and gather statistics from those willing to answer, but it is difficult to focus the statistics compiled from these answers upon difficulties which those in practical work are interested in solving. The disappointment of these studies in education is the deductions 1, 2, 3, etc. These are too often pointless, commonplace and useless, and sometimes false in the judgment of the workers who base their judgments upon a mass of facts, gathered through experience, analyzed and classified with great care.

For instance, a study of children's reading is made, and a thousand children, say, answer a questionnaire. A student of pedagogics analyzes these answers, and then advises the librarians. The librarian would welcome light. But on reading the thesis it appears that the librarian has analyzed a hundred children's answers, oral, to one analyzed by the student. The library records show what a thousand children draw in a day. And many principles of library education have been discovered by the librarian through direct insight into the souls of thousands of children. The student by the ready questionnaire succeeds, often, in suspecting, as hinted by his statistics, that which the librarian knows is not true, or, in his naïveté, in almost proving what the librarian-student has known to be fact for some time.

Again, the church has been educating the soul for many years. The name preacher is applied to her pedagogues. The student of pedagogy, a science developed by those called pedagogues chiefly in its application to the schools, seems to set aside the preacher, instead of including him among the pedagogues. Individual experience counts for little, and the accumulated experience of the church makes no contribution to church pedagogics. Light dawns on the questions involved in developing the soul into an experience of ambition for righteousness and of love for the great Heart of the All Father, when the answers to the questionnaire are tabulated. Humbly the preacher sits to read deductions, and lo! most of that which the statistics almost prove, he has known for some time; and many things that they suggest to the pedagogue, he knows are absolutely false.

The difficulty seems to be twofold. First. The school pedagogue assumes that the school can furnish a complete education. Lack of familiarity with the work of the library and the church makes it possible for him to believe that what seems to him logical is a possibility. I will stake my reputation on the assertion that psychology and sociology justify the existence of church, library and school as co-operating but distinct institutions, each having a special pedagogics. The school pedagogue's pointless deductions result from lack of personal contact with the institutions in which he is not himself at work. The scientific method, which is the method of the pedagogy of this day, requires thoroughness, and thoroughness dictates that the one who would be the prophet of advanced methods of work for the library or the church shall ground himself in general pedagogy, and then enter the library or the church, to understand its life, and become a specialist in library or church pedagogics.

And the second difficulty. When the pedagogue has become the library or the church pedagogue, although he has gained personal association, he has not become more than individual. He must organize a collective intelligence, and reduce his personal equation to the minimum. He must associate his own intelligence with that of twenty or more of the finest successful workers in order to give his investigations point and bring to bear upon his statistics the judgment

of many, and especially of many who have knowledge resulting from experience.

It is because the library and the church need their pedagogics developed, and because it appears as if the philosophy of education, which Clark University is doing so much to work out, will furnish the basis for determining the proper methods of education for the library and the church, that I write this statement of difficulties. I value highly the studies which Dr. G. Stanley Hall is inspiring.

E. M. FAIRCHILD.

Albany, N. Y., 16 March, '98.

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